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A
RETROSPECTIVE VIEW
OF THE
Scots Fisheries;
WITH
OBSERVATIONS AND REMARKS,
HUMBLY SUGGESTING THE
PROBABLE MEANS OF PRESERVING AND
IMPROVING THEM.

WITH
An ESSAY to the Highland Society of *Edinburgh,*
AND
A LETTER to the Right Hon. the Earl of Breadalbane,
Vice-President of the Highland Society of *London.*
By GEORGE PITCARNE,
Captain of the City Guard of *Edinburgh,* late Merchant there.

TO WHICH ARE ADDED,
Copies of Fourteen Letters (signed C. F.) that were published in the *Edinburgh Evening Courant* in August 1786, which contain many Valuable Hints to Fishers, who may be greatly improved by them, and will be useful to future Ages.

SECOND EDITION.

*Sma' is our need to toil on foreign shores,
Whan we hae baith the Indies at our doors.*
ALLAN RAMSAY.

EDINBURGH:

1787.

[PRICE TWO SHILLINGS.]

TO THE HONOURABLE
BOARD OF TRUSTEES
 FOR PROMOTING
 THE MANUFACTURES AND FISHERIES
 IN SCOTLAND:

THE FOLLOWING PAGES
 ARE HUMBLY DEDICATED

BY THEIR MOST OBEDIENT,

HUMBLE SERVANT,

GEO. PITCARNE.

A

RETROSPECTIVE VIEW, &c.

THE early state of the Scots Fishery can best be ascertained from the laws regarding it. By these it appears, that, owing to the frequent interference of the Legislature, the Fishery was often materially injured; laws being enacted, which tended to obstruct the natural course of that trade, and to promote only a narrow and confined monopoly.

It will answer the present purpose, to state the progress of the Fisheries, from the year 1707, the happy era of the Union, to this day.

In the Treaty of Union, particular attention was paid to the Scots Fisheries.—By it, the same premiums or drawbacks were allowed in Scotland, upon all fish exported, as in England; and a particular specification was made, of an allowance of 10s. 5d. *per* barrel of White Herrings exported from Scotland, under this restriction, That all such fish were to be cured with foreign salt only. At that time, too, Scotland enjoyed an exemption, for seven
 years.

years, of all duties on Scots salt, and was afterwards to pay only a fixed proportion of the duties payable in England ; a measure highly reasonable at that time.

The allowance specified in the Union Treaty, of 10 s. 5 d. *per* barrel, on Herrings exported from Scotland, being more, nay almost double, of what was allowed in England, an act was soon after passed, raising it to the same rate there.

The Funds allotted for payment of these allowances on fish exported, were the duties on salt. These were called drawbacks, being considered as equal to, or in lieu of the duties paid, or secured, of the salt with which the fish were cured. It very soon appeared, that there was either an error in the establishment, or some latent mal-practices existed ; the duties paid or secured on the salt in Scotland, being greatly short of the debentures claimed on the fish ; whereas the former should have compensated the latter. For relief of the holders of such debentures, an act was passed about the year 1719, allowing such as were then unpaid, or that should become due, to be paid out of the Excise in Scotland.

The Fisheries were carried on, with these allowances on exportation, until about the 1721; when the continued frauds on debentures excited public attention, in so far as concerned the Revenue ; and the great discredit of the British fish abroad, in consequence of these frauds, called loudly for redress, to recover their reputation:—

Accordingly,

Accordingly an act was passed, discontinuing the large allowance on fish exported, and permitting the importation of foreign salt into Britain, free of duty, for curing fish for exportation, and British salt to be taken for the same purpose, duty free ; and bounties upon exportation were then fixed, at the rate of 2s. 8d. *per* barrel of white Herrings, and 3s. for every quintal or hundred weight of Cod or Ling, thoroughly dried, being the same as at this day.

The great discredit of the British fish abroad at this time, as it was a severe blow to the Fisheries of this country, occasioned a proportional increase of that trade to other nations. It was not till this period, that the Herring Fisheries in Norway were ever heard of, they being hitherto esteemed a market for our herrings, as they had till then confined themselves solely to the fishing of Cod and Ling.—It does not appear, whether the Norway Herring Fishery happened in consequence of the fish shifting to that shore, and thereby inviting the Norwegians to follow out that trade, or if the disrepute of the British herrings in the Baltic markets had encouraged them to try it.

About this time, the free burghes of the Royal Burghs opened a subscription for the Herring Fishery, probably in the view of wiping off the odium which the Scots Herring Fishery had incurred abroad, thereby aiding the act for recovering the credit of the British Fisheries in foreign parts, and diverting the trade out of the course it had occupied for some years. This undertaking,

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ing, it is believed, did much public good ; but though in so far highly commendable, yet, as it was gone into singly with that view, without any regard to the Fisheries becoming a sole object of business for individuals, the fishers in a few years lost most part of their small capital, and dropped the Fishery ; but had the satisfaction indeed of instructing other fishers to cure and dress their herrings in a proper manner for foreign markets, as well as for home sale.

For twenty years preceding 1740, the Fisheries in Scotland seem to have been carried on nearly in their natural channel, as much reformation being made as could well be expected, after such malpractices. The quantities of fish exported in this period, appear from the bounties paid, being, at a medium, *per annum*, 5448*l.* at 2*s.* 8*d.* *per* barrel, and 3*s.* for every hundred weight of Cod or Ling.

The home markets have always been supplied ; to what extent cannot be so well ascertained.—It may suffice to observe in general, that, as the people came to live better, the consumpt of salted herrings was proportionally less than for forty years before.

From the best information that can be got, the price of herrings, during the above-mentioned space, run from 12*s.* to 15*s.* *per* barrel to the merchant for exportation ; and the best west country Lewis herrings were brought to Leith, and there sold for inland consumpt, at from 18*s.* to 21*s.* *per* barrel.

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From the 1740 to 1750, the Legislature did not much meddle with the Fishery ; few new laws being made, regarding either it or the salt-duty, with which it has an immediate connection. During this period, there appears a very remarkable decrease in the exportation, the bounties being only, at a medium, *per annum*, 3406*l.* at 2*s.* 8*d.* *per* barrel, and 3*s.* for every hundred weight of Cod or Ling.

There were, at this period, circumstances very unfavourable to the Fisheries—A rebellion in the country. Officers were hindered from doing their duty, and the offices shut.—Every merchant kept what money he had, being afraid to risk it in trade.—This convulsion, however, Providence made the means of establishing a degree of personal liberty, little known before in the remote parts of the country ; property having been thereby secured, and protection granted from the unjust and illegal exactions of the chiefs, landlords, and their factors, by an act of Parliament made about this time, throwing the heritable jurisdictions into the hands of the Crown.

From the last-mentioned period down to the 1760, the Fisheries seem to have been successful, many salutary laws relative thereto being passed about this time, to be afterwards more particularly noticed. The bounties on exportation, during this period, amount, at a medium *per annum*, to 7738*l.* at 2*s.* 8*d.* *per* barrel, as above.

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A new opening in the Herring Fishery happened at this period.—In 1754, a shoal of Herrings appeared at Gottenburgh, which has ever since continued to be uniformly the case there, though a thing formerly quite unknown. The Swedes did not for some years avail themselves properly of this advantage.—In the course of this tract, the consequences of their negligence, so far as respect the British Herring Fisheries, will be noticed.

The two acts 1750 of Geo. II. ch. 24th, and Geo. II. ch. 30th, both giving bounties on the tonnage of vessels employed in the Herring Fishery, being quite a new mode of encouragement, will be attended to. Under these acts, vessels were fitted out, which, in ten years time, caught 2419 barrels of herrings, called Sea Sticks, that is, unpacked, or only packed at sea; of which 18 barrels go to the last, or equal to 12 barrels of sufficient packed herrings; making 1613 barrels of proper packed herrings, fit for home sale, or for exportation; and, if they had all been exported, the bounty would, at 2s. 8d. *per* barrel, have been 215l. 3s. 4d. or, taking an annual part of the above number, being 161 barrels, the bounty would only have amounted to 21l. 10s. yearly. Such a trifling quantity hardly deserves notice, either for home sale or for exportation. At this time, too, the Fishing was very little benefited by the busses; though, for this experiment, a bounty on the tonnage, for the first ten years, was paid, of no less than 3459l. 16s. which is at the rate of 2l. 2s. 3½d. for every barrel of proper packed herrings they brought to market, being double their value.

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The laws which tended to do permanent good to the Fisheries, were, 20th of Geo. II. ch. 43. (1747), abolishing heritable jurisdictions, and giving security to property; and act 20th Geo. II. ch. 23. effectually suppressing the barbarous and unjust exactions of the last night's fishing in the week, by the ground owners, or their factors, denominated *Saturday night's fishing*; as also of 16s. 8d. for the privilege of wetting their nets, called *fize-money*.

These laws have done more good than any sums that can be given in busses bounties, and are a real service done to the Fishery. Besides, Britons, without distinction, are allowed the privilege of Scotsmen in the Fishing, which is attended with many good effects. By these laws, protection is afforded from injuries; and the benefit of the common beach, with a few yards of waste ground, are granted, which are strong incitements to this branch of industry, and occasion great success to the Fishery.

By act 29th Geo. II. ch. 30. (1756), the privilege of taking British salt, duty free, for curing fish for exportation, was likewise extended to Scotland, with an option of entering, for home use, herrings so cured, upon payment of 1s. *per* barrel of duty, in lieu of the duty upon the salt used in curing them:—A most important advantage to the Fishery.

We have formerly seen the home markets supplied with herrings, the export trade not at all inconsiderable,

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and yet the poor laborious boat-fishers, who are the source of the whole, in no manner of way encouraged, but, on the contrary, harrassed and oppressed. Indeed, since 1756, they have been protected; but they have no public encouragement for their industry; nay the reverse, owing to the partial distinction made between them and the fishers in decked vessels, who also fish with boats themselves, and in the same lochs and grounds with them: Besides, though most of their cargoes are caught by the boat-fishers, who have only a small price for them, yet the owners of these decked vessels have been paid by Government, during the space of ten years, from 1760 to 1770, at the rate of 17 s. 5 $\frac{1}{2}$ d. for every barrel they brought to market, which has been the cause of great emigrations, so very hurtful to the country.

The boat-fishers, however, still continue, though not so numerous as they were; and though it is to them that the country owes the requisite supply, and by their means that the foreign trade is mostly furnished, yet they have no public allowance for it, not having any agent to plead for them.

The fishers on the bounty have never brought the necessary supply for either the home or foreign markets, though they have effectually drained the Commissioners of the Customs of every shilling under their management.

During

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During the ten years preceding the 1770; the most remarkable matter relating to the Herring Fishery is, that the funds in Scotland, allotted for payment of the bounty on tonnage, fell short of the demands; and no wonder, as the experiment sometimes ran so high, as to demand above 30,000 l. *per annum*.

The adventurers who followed after the bounty where it was to be had, found their way to an English port, Whitehaven, as will afterwards be more particularly noticed.—The quantities of fish exported do not increase in this period, notwithstanding of the very large sums claimed as bounties on the tonnage of vessels employed in the Herring Fishery, the bounties on fish exported being only, at a medium, *per annum*, L. 6026, at 2 s. 8 d. *per barrel*, and 3 s. *per hundred weight* of dried cod or ling.

These vessels, in this period, caught 102,886 barrels of proper packed herrings, fit either for home sale or exportation, which is, *per annum*, 10,288 barrels; and, if they had all been exported, the bounty, at 2 s. 8 d. *per barrel*, would have been L. 1371 : 14 : 8 : yearly, which is but a small part of the above L. 6026, and shows moreover the inconsiderable service they did, in furnishing herrings for the foreign markets: Besides, had there been no other fishers for the home markets, the people in Scotland would not have been supplied with one third of what was necessary for their use. These vessels, however, received a bounty on the tonnage, out of the cus-

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toms, of no less than L. 143,020 : 17 : 10, being at the rate of L. 1 : 7 : 9½ : for every barrel they brought to market.—This occasioning a failure of the funds for payment of these bounties in Scotland, the fishers on bounties went to Whitehaven, where they fitted out, and got licensed, which entitled them to payment in England, although they discharged in Scotland. Accordingly, they obtained payment in England, in the years 1768 and 1769, of no less than

	L. 16,398 15 0
Which, with the foresaid sum in Scotland, of	143,020 17 10

	L. 159,419 12 10
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In these ten years makes in all

Such immense sums, given to one set of men, in preference to the poor boat-fishers, is absurd, especially as they fish in the same lochs together. Some of these lochs are so narrow at the entrance, that a net may shut them up, as Loch Broom, Loch Sunart, &c. being only about 20 fathoms broad, but widen within *. At these places, and indeed on all the west coast of Scotland, it is well known, that the fishing can be better and cheaper done by the natives, who fish for their own behoof with their open boats, than by hirelings, or any other mode whatsoever. It is therefore not to be wondered at, if this great public bounty, and the parade these bounty fishers made, discouraged the poor industrious natives, who had no friend to act for them, nor any person

* See Mr Murdoch M'Kenzie's Maps.

person to state their case properly before Parliament in making that law.

Patrick Lindsay, Esq; some years ago Lord Provost, and Member of Parliament for the city of Edinburgh, who wrote a Treatise on the Scots Fisheries, says, That 2000 boats were usually employed on the West Coast fishing annually, when the fish were on that coast; and that it is a seminary for breeding and employing from 12,000 to 14,000 seamen yearly. He also mentions the fishing on the East Coast of Scotland, and that of herrings in particular. He says, that, when successful, there were from 600 to 800 boats, with eight or nine men in each, employed in the Frith of Forth, (Edinburgh); and that there were in the Murray Frith from 500 to 700 boats, with six or seven men in each: And adds, That the coast fishing in these two friths employs above 3000 fishermen and sailors, for more than two months in the year, and is a source of breeding above 7000 seamen annually, who earn their bread by their labour on shore near ten months in the year, being all working artificers, carpenters, coopers, net-makers, day-labourers, and farmers servants, that live near the coast, and make it a condition with their masters, to be allowed the drave to themselves, when the herrings are on the coast. In this trade, he says, a body of about 20,000 seamen may be raised yearly, at no expence to the State; which is infinitely beyond what any trade can do that is forced by bounties.

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The law, granting L. 2 : 10 : of bounty on the ton of vessels fitted out for the Herring Fishery, expired in 1771; and a new law was made, allowing L. 1 : 10 : *per* ton of bounty upon vessels fitted out for that purpose, which commenced 22d October that year. It shortened the time required for the vessels to continue at the fishing, admitted of carrying a less quantity of nets, and allowed, for payment of the bounty, all the money under the management of the Commissioners of the Customs in Scotland; which falling short, then the whole under the Commissioners of Excise to be subject in payment of the said bounty; and, in future, vessels, the property of persons residing in Scotland, are to proceed from Scotland only.

The fishers on the bounty continued, until the existence of this act, to fit out chiefly from Whitehaven, and to discharge in Scotland; by which means, they received, in the years 1770 and 1771, from the English customs, L. 40,900 : 12 : 6: of tonnage bounty. The bounties paid in Scotland from 1770 to 1779, amount to L. 109,069 : 17 : 10. In this period, the vessels caught 188,151 barrels of proper packed herrings, making, at a medium, 20,905 barrels *per annum*; a quantity greatly short of what the home consumpt required in Scotland, and which, had they all been exported, would, at 2s. 8d. *per* barrel, have amounted only to L. 2787 : 6 : 8; a very trifling proportion of the export trade.—The bounties paid at this time on the tonnage of vessels, were at the rate of 11s. 7d. for every barrel of herrings they brought to market.

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The bounties on fish exported during this period, were, at a medium, L. 7836 *per annum*, at 2s. 8d. *per* barrel, and 3s. *per* hundred weight of dried cod or ling.

During the last nine years, the tonnage bounty fishers were paid in Scotland - - - L. 119,323 0 2
 And in England - - - - - 40,900 12 6

L. 160,223 12 8

being at the rate of above 17s. 5½d. for every barrel brought to market.

The whole bounties on tonnage paid out of the Scots revenue, from 1750, the time of their commencement, to the 1779, were - - - - L. 255,550 6 6
 Those in England - - - - - 67,598 15 0

Total L. 323,149 1 6

Notwithstanding the payment of these great sums, the markets were no better supplied than formerly, nor more fish exported, and the prices as high as they used to be.

Thus having given a short narrative of the Scots Herring Fishery since the Union, it is obvious what laws obstructed, and what promoted that most useful and valuable branch of trade.

It appears that the laws made about the Union tended to obstruct the trade and industry of many, being solely calculated

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calculated to serve the purpose of a narrow and confined monopoly.—In the Treaty of Union, the Scots Parliament were very zealous in favour of the Scots Fisheries. Their zeal and success, however, in obtaining an exorbitant bounty of 10 s. 5 d. upon the barrel of herrings exported, tempted many to commit frauds, and, in the space of 12 years, brought reproach and discredit upon the country and the British fish abroad, to the inexplicable hurt thereof, and great decrease of the revenue.

It appears that the large bounty on the tonnage of vessels fitted out for the Herring Fishery had likewise occasioned a greater diminution of the revenue than was before known, and has done no good, as these vessels have neither brought better fish, lowered the price, nor increased the quantities at market.

It appears, that by giving a bounty on a native commodity brought to market by one set of men, and no bounty on the same article, though of equal goodness, brought by the boat-fishers, the poor, industrious, and laborious set of men, is a distinction never before known in the revenue laws, and has certainly been overlooked in making out that law, as these men are the most numerous, and the strength of the Fishing.—*They ought to be encouraged in a very particular manner, and the bounties on fish should be upon exportation only, making no distinction who are the fishers, or how they are caught, if only by British or Irish subjects. The fishers of both nations ought to be allowed to fish upon each other's coast, without*

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without interruption, seeing they are the subjects of the same Monarch, and may be useful to each other, by learning to catch, cure, or dress their fish, better than they did formerly.—But these advantages ought only to be enjoyed by those who are at pains to cure and pack their fish properly; a circumstance that ought to be most carefully attended to, as the reputation and credit of the country depends upon it, and which was in some measure amended in last Session of Parliament, which gives the poor boat-fishers some premium for what they catch, and will encourage them to be at pains to catch and cure more fish in time-coming, which will be of great service to the country, and will prevent emigrations. With this view, it is here proper to mention the Scots act 1693, directing every burgh to appoint a man of judgment and skill to inspect all fish exported out of his precincts, and to affix the burgh's mark upon all casks that are sufficiently cured and packed.—This law is still in force; but the act, called *the Freedom or Communication of Trade for Export and Import*, extended to other places besides the Royal Burghs: In 1698, of course, no burning iron or mark was used at many places; and that measure is now much in disuse; though, in the few towns where it is continued, it is of great service, such as Aberdeen, where the custom still prevails, causing their salmon to give 8 or 10 shillings per barrel more than any others, at several of the foreign markets: Besides, it excites a laudable emulation to preserve reputation once acquired, and is the means of directly detecting frauds when committed. This plain and simple
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regulation tends more to keep up the reputation of fish exported than any other; and the omission of it has been an inlet to fraud, to the great discredit of our Fisheries in foreign parts. It has a similar effect to the Sterling mark upon plate, the stamp upon Scots and Irish linens, &c. &c. which is to be observed in future by the late act of Parliament, and will be of great use.

With respect to the Gottenburgh Herring Fishery, already mentioned, the immense quantities imported from thence into Cork, and other ports in Ireland, were very properly attended to some years ago by the Irish Parliament. These herrings were mostly reshipped to the British West Indies; and the duty at importation was paid, after retaining only 1s. 6d. *per* barrel. But, by an Irish act, 17th and 18th Geo. III. ch. 8th, § 33d, it is enacted, That, after the 21st of June 1779, no drawback of any duties shall be allowed upon exportation of fish imported into that kingdom.—The duty is 4 s. *per* barrel, which being retained at exportation, will be in favour of the British fishers, in sending their herrings to the West Indies, as they can afford to sell their fish so much cheaper than the Gottenburgh herrings.

It is with pleasure I now proceed to enumerate the useful acts, and their good effects.

The act abolishing the heritable jurisdictions, 1747, secured property and personal liberty; and the act in 1756 gave fishers protection from oppression, and granted every indulgence

indulgence the salt laws could admit of. By it, Englishmen (who were before forbid) were admitted; and men of skill and property have thereby been induced to settle at Isle Martin in Loch Broom, in the heart of the Fishery. They have erected red herring houses, and buy their herrings from the boat-fishers there, which is of great service to the poor people, and to the country in general: And in all this, they are followed by Scotsmen at the same place; and there are, besides, fishers with open boats, who, finding their advantage in it, come from Northumberland to the Frith of Forth in the time of the herring fishing, and should be encouraged.

The Scots act directing the burgh mark, if it could be extended to all ports from whence fish are exported, would surely be of great service, and is truly worthy the notice of the Legislature. This is noticed by the last act of Parliament, and will be of great use.

The proper regulations mentioned by Mr Lindfay, of the herring drave*, which are the same with those observed at this day, and excel every thing yet devised, for promoting attention, care, and success in the Fishing, it is humbly thought, deserves the attention of the Legislature, and ought to be kept in force.

The merchants and monied men, some years ago, were in use to fit out vessels from 40 to 100 tons burden, with salt, casks, coopers, money, meal, spirits, snuff, tobacco, &c.

* See his Book in the Advocates Library at Edinburgh.

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&c. and sent them to the Lewis, and the lochs and fishing grounds where the boat-fishers were, and purchased from them their cargoes at very low prices, which was of great use to the country. It has been reported that some of the vessels on the tonnage bounty did no more;—thus adding perjury to fraud, which high bounties often tempt.

The Norwegians fish their herrings in open boats; the Swedes do the same. Each of them, at present, as to quantities, do more than the Dutch, whose situation does not admit of fishing in open boats.

The fishing on the West Coast of Scotland is reckoned more certain, constant, and uniform than that on the East Coast; the smooth water in the lochs and bays, it is thought, inducing the herrings to come there in great shoals to spawn in their season.

The Friths of Forth and Murray, till of late, had been for several years much deserted; but the fish have been, and are at present, in great plenty in those places, and the Fisheries are there carried on to a great extent; particularly at Dunbar, where they cure great quantities of both white and red herrings to a considerable value, and no bounties asked, except upon exportation.

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Follows a short Account of the COD and LING FISHERIES.

THIS branch of Fishing admits of very great improvements, and may be greatly enlarged; but it has been much neglected for many years past. The greatest Fishing of this sort in Scotland is in the islands of Shetland; and, several years ago, this branch of Fishing was also carried on to a great extent in the islands of Orkney, and in most of the Western Islands, in the Murray Frith, and all around the coasts of Scotland. At present, and indeed for these many years past, this Fishing has been confined to the islands of Shetland, at least for exportation; altho' there are surely both Cod and Ling in great plenty upon all the coasts of Scotland; but the fishers are not at pains to seek after them, not having any encouragement for doing so. But if a Premium was given to every Fishing Boat annually, for following after the White Fishing, according to the number of men, and quantity of lines or nets, they carry, and to be obliged to go to sea every lawful day the weather will permit, at least for a certain number of days in the year, that sort of Fishing will be found very successful.

And as the bounties upon these fish when exported are by far too small, being only 3s. for every hundred weight or quintal that are quite dried, and 5s. for every 120 fish not quite dried, of a proper size, it is humbly proposed, That an additional bounty should be given up-

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on those fish when exported, as afterwards to be taken notice of. And as there is another fish caught in Shetland, of which there is great plenty, called Tusk Fish, which is finer than Cod or Ling, but smaller, there ought to be a bounty also allowed upon them when exported; which additional bounty would encourage the fishers to follow out that trade to a much greater extent, and would likewise be the means of causing the fishers, in the different places where that trade was formerly prosecuted, to attempt it again with more life and spirit; with this express provision, That the inspector or shipping officer be allowed, by law, to take samples of the fish, when he thinks them not cured or dried as the law directs, (the owners being allowed a reasonable price for the same), until he has instructions from the Commissioners, whether they are to have debenture for the one or the other bounties, *by the weight, or by the number*, which is very material, as many pernicious mistakes have often been committed in this article, the officer not knowing precisely which of the bounties should be allowed, and thereby, though perhaps unintentionally, materially hurting the Revenue.—This is also noticed by Act of Parliament last Session.

And as it often happens, that the quantities at one place are too small to export, may lie a dead stock on hand, and so be liable to perish before next season, which often happens in times of scarcity of provisions, (as was the case two years ago), the owner should be allowed to sell them at home, upon paying the salt-duty.

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The following Hints are humbly proposed as Regulations for the probable means of preserving and improving the Fisheries in Scotland.

1st, That the bounty on the tonnage should be only 20s. *per* ton, and no vessels to have bounty below 15 tons, nor any above 100 tons burden, which will make them venture farther out to sea, where the fish are both larger and better.

2^d, That a bounty be allowed of 5s. *per* barrel of White Herrings exported, properly cured and packed, and the year and name of the port from whence they are shipped, to be marked on each barrel with a burning iron, in capital figures and letters.

3^d, That the bounty upon Cod or Ling exported, should be 10s. for every 120 fish of a proper size, as in the Book of Rates, that are not quite dried, but properly cured.

4th, That a bounty of 5s. be given for every hundred weight or quintal of Cod or Ling exported, that are *thoroughly dried*, properly cured, and of a proper size.

5th, That a bounty should be allowed upon Tusk Fish exported, of 2s. 6d. for every hundred weight or quintal that is *thoroughly dried*, and 4s. for every 120 Tusk Fish that are not dried, but properly cured.

6th, That oil being made from the livers of most fish,
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and an article used in sundry branches of manufacture, such as making of soap, tanning of leather, greasing of wool, burning in lamps, &c. it should be encouraged, and a bounty given for the making of it, of at least 2s. 6d. *per* barrel; no matter whether it is exported or not, if it is good; but if it is not good, it ought to be confiscated, and the owner fined, if he claims the bounty.

7th, That the boat-fishers should be encouraged in a particular manner, and some premium given them; which would be an effectual method of establishing the Fisheries for ever, and of increasing the number of fishers. To that end, the following hint is humbly proposed: That each boat be numbered in every district, and a bounty given to each boat for the season, from L. 5 to L. 10, according to the number of men, and quantity of lines or nets they carry; or to allow them a bounty of from sixpence to a shilling for every barrel of fresh or green herrings they bring to shore, and sell to merchants, busb fishers, or others, who cure them and pack them, either for home sale or for exportation: this premium to be paid by the Commissioners of the Customs, upon producing a certificate upon oath, before a magistrate, minister, justice of peace, or a custom-house officer appointed for that purpose, at the different ports where fish are caught, certifying the number of barrels they have caught and sold, as above, each season: Likewise, That the boat-fishers be paid a premium of 2s. 6d. for every 120 green cod or ling, and 1s. for 120 green tusk fish they bring to shore, and sell as above, to be certified

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as the former. These premiums would encourage the poor boat-fishers, and increase their number to such a degree as to render it easy, at any time, to man the greatest part of the British fleet with stout and hardy seamen, upon very short warning; the fisheries thereby becoming a constant nursery for breeding sailors, besides increasing the quantities of fish at market.

8th, That, in every port in Scotland, where fish are entered for exportation, there should be a man of prudence, judgment and skill, appointed to examine the curing and packing the fish, and to mark with a burning iron, upon every cask, in capital figures and letters, the year, name of the owner, and the port from whence the fish are exported, if he finds them sufficient; but, if they are not so, the owners to be severely fined. These men to be appointed to their offices by Government, with suitable and decent salaries to encourage them to do their duty, so as not to be in hazard of being led into temptation; but subject to be dismissed from their office, if found taking any fees from the exporters.

The following is an exact account of the quantity of herrings caught, and of the bounties paid in Scotland, besides what were paid in England, on the tonnage of vessels, from 1750 to 1779, which shows the great sums paid of bounties, for a small quantity of fish caught in that time.

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Barrels.

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	Barrels,	Bounty paid.		
		L.	s.	d.
From 1750 to 1766	- 1613	3459	16	0
From 1766 to 1770	- 102,886	143,020	17	10
From 1770 to 1779	- 188,159	109,069	12	8
Total	292,658	255,550	6	6

These quantities of herrings were caught in twenty-nine years time, for which the foresaid great sums were paid on the tonnage of vessels, amounting to above 17 s. 5¹/₂ d. for every barrel; and neither the home nor foreign markets were any better or cheaper supplied than formerly.

9th, To prevent any future frauds, it will be proper, that a certificate be produced in a limited time, importing, that the fish exported are landed in the West Indies, or other foreign ports; and payment of part of the bounties should be delayed until such certificate is produced,

Lastly, Agreeably to what Mr Knox recommends in his book on the Scots Fisheries, if villages or small towns were erected in the different places of the country where fish are caught, merchants and others would resort to, and settle in them, and accommodate the fishers with habitations, and the various materials necessary for their use, by which means they would mutually serve each other, as well as the country; and if, at the same time, the landholders would build houses, or feu out their grounds on moderate terms, it would encourage people

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people to settle in them. But to promote this the more effectually, if Government would be pleased to contribute to it, in some such manner as the wisdom of Parliament may suggest, that would be the only sure way to render the fishing permanent, and confirm it in all time-coming, as well as prevent any emigrations hereafter.

Thus has the writer of the foregoing pages, as concisely as he could, humbly presumed to offer his sentiments on this interesting subject. He is very sensible of his want of ability for the full discussion of a matter of such vast importance; but he hopes for the indulgence of a candid public. By means of his intimacy with a gentleman, dead some years ago, who held an office at the Custom-house General at Edinburgh, he had access to know the exact quantities of fish caught during the periods referred to, and the sums paid both for tonnage and exportation, bounties, &c. &c. He has only farther to mention, that the observations herein contained are the result of long experience, and many years investigation; and being written solely with a view to the good of his country, he will be happy indeed, if any of them shall be thought worthy of notice, as anywise tending to promote the great ends presently in contemplation by the British Parliament, and the Highland Societies of London and Edinburgh, respecting those truly grand objects of national wealth, strength and utility, *viz.* to prevent emigrations, the *improvement of the British Fisheries, and the manning of his Majesty's Navy with stout and hardy Seamen.*

A N

AN
E S S A Y
ON THE
Scots Fisheries,

Laid before the Highland Society of Edinburgh, in
October 1785, by George Pitcarne, Captain of the
City Guard of Edinburgh, for which they gave him
a Gold Medal.

AMOR PATRIAE.

TO THE HIGHLAND SOCIETY OF EDINBURGH:

AN ESSAY ON THE SCOTS FISHERIES.

THE Fishings on the Highland coasts and islands of Scotland are immense ; at present, they are much neglected ; but if these are once properly understood, and seriously followed after, they will undoubtedly become not only a source of lasting riches to this kingdom at large, but a peculiar blessing to those particular parts of the country where they shall be carried on.

The Gentlemen Landholders, or their factors, should, at proper places and distances, annually lay up a stock of salt and casks, with boats, nets, lines, and hooks ; also some malt, oat meal, spirits, snuff, and tobacco, and other necessary provisions ; and should make proper and reasonable agreements with their tenants and fishers, (what they are to pay) for the necessary articles furnished to them ; and to allow them a reasonable price for all the fish they catch in the season, in the manner that the landholders

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landlords do in Shetland with their fishers, which would encourage the poor people to follow out the fishing when the fish are on the coast, or in the lochs or bays—as it very often happens, that, for want of these magazines of salt and casks, after the fish are caught, they are lost and thrown to the dunghill: whereas, if small magazines of that sort were provided at sundry places, the fish would be preserved, and both the landlords and the fishers would be gainers.

And to preserve the casks from spoiling, in case they are not all used every year, they should be filled with salt or with water, until the fish are caught to pack in them, by which means, not only the Herring Fishing, but also the Cod and Ling Fishing, may be carried on to very great extent, of which there are likewise great plenty on all the Highland coasts, and all the islands of Scotland, particularly the islands of Orkney and Shetland, and the island of Barra, and on most parts of the coasts of the Western Islands of Scotland, if they were properly sought after. As an instance of which, the following anecdote is here inserted:—A few years ago, the author was in Orkney, when a vessel was lying, wind bound, in Elwick road, in the island of Shapinslaw, in that country, the master of which dined one day at the minister's house of that parish, and invited the minister and the author to dinner with him next day on board of his vessel, when he would give them fine fresh cod for dinner, which were not then caught; the minister, divert-

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ingly, said, he should not gut fish until he caught them; but the shipmaster replied, he was sure of them, as he had fed his crew, ever since he came there, with fresh cod, and would catch them within a *gun-shot* of where his vessel lay: He was as good as his word, which surprised the minister very much, as he had never heard nor known of cod being caught there before. Many instances of this kind may be given from different places in Scotland, which is a proof of what may be done, if the people were encouraged, and *shown* the right way to seek after the fish where they may be caught.

Follows a List of the number of vessels or buffes that were at the Herring Fishing from the year 1750, when the tonnage bounty was first appointed, to 1779, and the bounties paid them, with an account of the number of barrels of herrings caught in that time, which can be certified by the Custom-house books.

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The Year	Bounty per ton.	N ^o of vessels	N ^o of barrels landed	Bounties paid.		
				L.	s.	d.
1750	30s per ton					
51	ditto	2	214	223	4	0
52	ditto	4	452	452	8	0
53	ditto	8	519	777	18	0
54	ditto	6	564	605	8	0
55	ditto	1	68	116	14	0
56	ditto	1	64	116	14	0
57	50s per ton	2	317	259	10	0
58	ditto	3	245	454	0	0
59	ditto	3	4	454	0	0
1760	ditto	13	3089	1386	17	6
61	ditto	17	4046	1863	17	6
62	ditto	49	12949	5140	15	0
63	ditto	87	3055	9228	17	0
64	ditto	119	8832	12828	0	10
65	ditto	157	39691	17640	0	0
66	ditto	161	21146	31190	0	0
67	ditto	163	28162	31390	0	0
68	ditto	202	15538	23882	10	0
69	ditto	85	17822	8470	0	0
1770	ditto	19	1878	2154	3	4
71	ditto	4	385	525	8	4
ditto	30s per ton	25	2447	1559	12	6
72	ditto	168	22237	11055	7	6
73	ditto	190	42055	12510	8	6
74	ditto	249	56593	17025	5	0
75	ditto	279	53284	19509	5	0
76	ditto	293	51669	21232	7	6
77	ditto	237	43016	17362	2	6
78	ditto	90	8662	6135	12	6
29		2637	438,975	L.255,550	6	6

From

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From the foregoing list it appears, there were 2637 vessels at the Herring Fishing in 29 years time, who caught 438,975 barrels of herrings, which are called Sea Sticks, being packed at sea, of which it takes 18 barrels to fill 12 barrels of proper packed herrings, when repacked at shore, which makes 292,650 barrels, fit either for home sale, or for exportation, for which bounties were paid, amounting to L. 255,550 : 6 : 6, which is above 17s. for every barrel they caught, and is near their full value. Besides these, the boat-fishers caught herrings at the same time, which greatly exceeded the above quantity; but as there were no records kept of what they did, it cannot be ascertained: Altho' it is fact, that, from the great quantities used every year at home, by the tradesmen and the country people, there were many more herrings made use of at home than what were exported; and *shows* us what great treasure we have upon our coast, and what great wealth may be brought into the country, if the fishing were attended to in a proper manner.

It is well known, and has been certified by many respectable authors, that there has often been above two thousand boats employed yearly upon the west coasts of Scotland at the Herring Fishing; and when fish are on the coasts, it is believed, there are still seldom fewer than twelve hundred boats yearly at the fishing; but as the author cannot ascertain it to be the case, yet he is well informed, there are still that number, and each boat has generally from four to six men in it, which is a certain

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certain nursery for breeding stout and hardy seamen for the navy, &c.

The general value of herrings runs from 20s. to 25s. *per* barrel, if they are good, and sufficiently packed and cured. Salt and casks may be got from the Friths of Forth or Clyde, or refined salt from Lord Dundonald's Salt-Works; but Spanish or foreign salt is reckoned stronger and better for curing herrings with, especially if they are exported to warm countries, and in that case the duties of the salt are drawn back: But very great care should be taken to cause all herrings be repacked with new pickle, after they come to shore; for they are packed at sea in a great hurry, and done so *slightly*, that it takes three barrels to fill two barrels when properly repacked, by which means they are greatly improved, and will keep much longer, and may be carried to the West Indies, or any other foreign market, and will sell for much more money than they otherwise would do. This would keep up the character and credit of the country, as well as help to enrich it.

There is another branch of Fishing on many parts of the north and west coasts of Scotland, which is very little known, and may be made very beneficial, although it is attended with some danger. There are great numbers of Seals or *Selchs* on all the north and west coasts, and on some of the islands of Scotland, who frequent rocks at a distance from the land, and in several caves on the continent. If a premium was given for catching them,

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them, that trade might be carried on to very great advantage, as the Oil made from them is the best in this country, and fit for many uses: Besides, their skins are very valuable when tanned, being a new branch of manufacture for making of shoes either for men or women, which are greatly esteemed, and which should be encouraged and taken notice of by the Legislature. The season for catching them is in the month of October, or about the first of November, which makes it dangerous, as the weather is ready to break about that time of the year: But with stout boats, or rather small decked vessels well manned, that trade may be carried on with very great success: As the Author has seen from 500 to 1000 seals caught in little more than 48 hours time, from a rock that lies about eight leagues to the westward of Hoymouth in Orkney, where there are great numbers of them, and in many other places thereabout.

The Society, at the same time, should use their influence with Members of Parliament, Noblemen and Gentlemen, who have the good of their country at heart, to get the bounty on fish augmented when exported, as the present bounties are by far too small, being only 2s. 8d. for a barrel of herrings, and 3s. for every 100 weight or quintal of dried cod or ling; and to get men of probity and skill appointed at every port in Scotland, from whence fish are or may be exported, to examine them before they are shipped, and to mark with a burning iron each cask, the year, name of the owner, and the

the port they are sent from, if he finds them good and sufficient,—if not, the owner to be fined. This will prevent fraud, and keep up the reputation and credit of the country.

All of which the Author humbly begs leave to offer as his advice to the Society, and to get the Trustees, or rather more properly Parliament, to grant bounties or premiums for establishing the fisheries in such a manner as will confirm them in all time-coming; which will be an inexhaustible treasure to the kingdom, and a certain way of improving the Highlands and iflands of Scotland, in a very extraordinary manner: This will prevent emigrations; and, in a few years, it will make the country and the people in it respectable. As they are generally very sober, careful, and industrious, they only want encouragement, and people to show them to do things in a proper way, being naturally tractable and willing to do well, if you take the right method with them; they may be easily led, but not driven.

Lastly, If the landholders will build houses, or small villages in proper places and distances, where fish are or may be caught, traders and adventurers will resort to and settle in them, and will accommodate the fishers with habitations, and the different materials necessary for them; by which they will mutually serve each other, as well as the country: And these traders will find it their interest in providing salt and casks, &c. at those places, when they find a ready market for them, which will be of great use to

to the country,—and in a very few years will make it much more populous than ever it was, and corroborate what is said in the two following lines of Allan Ramsay's Poems:

*No nation in the world can parallel,
The plenteous produce of our happy Isle.*

... COPY ...

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COPY of a LETTER sent to the Right Hon.
the EARL of BREADALBANE, as Vice
President of the Highland Society of
London, March 27th 1787.

MY LORD,

I N the Edinburgh Caledonian Mercury of 22d February last, I observed an advertisement, desiring every person who has any local knowledge of proper places for promoting the Fisheries upon any parts of the West, North, or East Coast of Scotland, to inform your Lordship thereof, as Vice President of the Highland Society of London.

I therefore beg leave to offer your Lordship and the Society my small and humble opinion of some places where I have known several years ago white fishing of different kinds carried on to great advantage, such as Cod, Ling, Tusk, Haddocks, Seath, Skate, and Turbot, and may still be done, if the inhabitants were encouraged, by giving them some boats, lines, nets, &c. or rather premiums, as the Society or Parliament shall think proper:—For example, If they will be pleased to cause all the fishing boats in every parish or island every season to be numbered; and according to the number of men, and quantity of lines or nets each boat carries, to give each boat a premium from L. 5 to L. 10 sterling yearly; this would effectually establish the fishing for ever. The
places

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places where I know those fish are, and may be caught, are in most or all of the islands of Orkney and Shetland, and in the island of Barra, and most of the Western Islands of Scotland, also in the friths of Forth and Murray. If such premiums are given for a few years, there will be great plenty of fine fresh white fish, as well as herrings, for all seasons in most of the public places in Scotland, both good and cheap.

I hope your Lordship will excuse this freedom; but my anxiety for promoting the fishing makes me presume to offer my poor opinion on the subject: And I am, with great respect,

MY LORD,

Your Lordship's most obedient humble servant,

GEO. PITCARNE.

THE following Letters the Author of this Pamphlet has read with great attention and pleasure ; he is of opinion it would be a great loss to the Public were they not reprinted. They appeared only in the Edinburgh Evening Courant, and may have been seen but by a few ; and as News-papers, when once read, are generally thrown aside, and seldom, if ever, perused again, for this reason he has annexed them, not only for preservation and the honour of their Author, but the instruction of the Public at large : They contain most valuable and useful directions, which may prove the source of many improvements in future ages.

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L E T T E R I.

For the Edinburgh Evening Courant.

S I R,

August 9. 1786.

I must give peculiar pleasure to learn from a paragraph in your paper lately, that the bill for the encouragement of the Fisheries, lately passed, presently has raised such a spirit of preparation for prosecuting them, at sundry places upon the West Coast : Your correspondent further remarks, " That if these industrious people are supported, by a reasonable encouragement to the Fisheries upon a sensible practicable plan, free of speculative schemes, the happiest consequences will soon follow, not only to the West Coast, but to the nation at large," &c.

I know nothing of the principles of the bill ; but as so much pains has been bestowed by many very able gentlemen, I will suppose it to be as complete, as a tender delicacy, and a deference to the opinions and even prejudices of our practical fishers of these times, will admit of : If it recommends, without too rigidly enforcing (until instructors are obtained for introducing improvements) an alteration in the present system of operations, it would be well ; but even this would not please.

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- For it is observable, that, in all ages, there ever has been a keen aversion or sullen obstinacy displayed at every attempt towards improvement or reformation, even where the practices are known to be ineffectual or bad: The generality of mankind (professional men in every station in particular) spurn at the idea of being thought less able, or to stand in need of instruction from their neighbour; and therefore they adhere so closely to what their minds have been familiarised to, that it is not without the keenest struggle, and after the plainest conviction, they can allow themselves to be undeceived.

Had these principles universally prevailed, without the admission of *speculative schemes*, or attending to the first essays of genius, the world had yet remained in a state of savage wild barbarity, and we had known nothing of those elegant and useful inventions and improvements in arts, sciences, and manufactures, that have, by the labours of the human mind, been brought to a state that forms the glory of the present age; and is almost daily acquiring such new accessions from the exertions of genius, in consequence of the generous attention in general paid to it, that it promises to future ages acquisitions as far transcending those of the present times as they do the former, unless some great convulsion in the state of nature or of nations intervene to mar the fair prospect.

Perhaps no branch of business ever stood in more need of improvement than does that of our Scots Fisheries. This is a sentiment I know will give offence to many; but,

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but, were it not founded on truth, the public had not been amused with so many *speculative schemes*, as they have seen of late; for it would otherwise have been upon so good a footing, as to have precluded their necessity, consequently they never would have appeared.

An inquiry into their present practice, and for many years bypast success, exhibits such a very mortifying scene of bungling and blunder, disappointment and loss, as cannot fail to have lessened us in the estimation of European nations, considering it is so well known that we possess the most commodious and advantageous situations in the world for that purpose, that ought to give us the superiority of all others, and, if properly occupied, certainly would enable us, not only to produce fish of the best quality, and in the finest condition, but to undersell all other nations at most markets.

Notwithstanding which, and the very considerable sums of money that have been generously bestowed by Government in bounties for these good many years bypast, we have been very unable to supply our own markets for home and colony consumpt, besides furnishing a surplus to our neighbours, as we certainly ought, and that to a great amount, entirely owing to the improper manner the business is conducted in, by boat-fishing, which method only is practised, both in cod and herring fishing, round all our coast. It is admitted, that, when the fish happen to set into the lochs, or close to the land, much
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may be done by boats ; but the uncertainty of this is far too conspicuous indeed.

The consequence thereof is, that the generality of prudent cautious people, who are not at the trouble to investigate the true cause of our failure, are disgusted at the trade, and suppose it untenable, chiefly attributing our disappointments as the fault of our seamen, whereas the blame lies entirely at the doors of the proprietors of our fishing adventures, in not procuring fit instructors, and properly equipping their vessels ; for were this done, and our people once put into a proper line, it will hardly be doubted but they are as good and hardy men to brave the dangers of the sea, and as fit to conduct any enterprize, where honour or interest is to be acquired, as any other people whatever.

A perusal of Mr Knox's View of the British Empire will shew him to be the warm friend and able advocate of his country : He has been at much pains to ascertain the produce of our captures, and extent of exports, for a series of years ; and no better evidence need be adduced to corroborate what is said ; and it shews, that an average of the last seven years has just yielded half cargoes to the bounty vessels.

I have lately seen a gentleman from Stornoway in Lewis, who informed me there were twenty-one vessels rendezvoused there last year on the bounty fishing.— These, after three months fruitless search, shifting from
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one loch to another, as usual, hardly procured among the whole a sufficient quantity of herrings to make a cargo to one of the smallest of them ; and yet the commanders of these vessels, I have reason to suppose, are not inferior, and, to my certain knowledge, several of them, with whom I have conversed, are equal in good sense, spirit, and ability, to any that use the trade ; and as they reside near the fishing ground, have had an opportunity, and would undoubtedly exert themselves as much as their neighbours.

At Staxigo, too, on the coast of Caithness, in the Moray frith, there were fifty or sixty boats employed to fish for herrings this last season, and they had no success at all : A gentleman from Aberdeen, who was interested in the hire of a part of them, and who very justly attributed their want of success to the boats not going far enough out to sea (which they dare not do, on account of the rapid tideway that runs there,) went out with them several nights himself ; yet, although by his persuasion they went farther than usual, it was not far enough, for they did nothing, farther than having the mortification to see several Dutch vessels busily employed, who, he afterwards learnt by coasting vessels that had passed and spoke with them, were fishing very successfully, and made their full cargoes in the course of betwixt two and three weeks, just within a few miles of where our people spent the season, toiling to no purpose. Similar instances to this, that might be mentioned, are numberless ; these are only condescended upon, as most recent.

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I have also conversed with a seaman from Ostend, who was in our seas last season at the herring fishing; he assured me, that one morning, a few leagues to the north-east of the Buchanells, they had above 120 barrels in one haul of their nets; about 100 barrels of which they got cured in good condition, the rest was thrown overboard; whereupon they got from another vessel in company, belonging to the same owners, sufficient, with what they had before, to complete their cargo, and went directly home.

These failures on our side, and the success on that of foreigners, are as certain and regular as the seasons return; and it is well known that the Dutch in general make from two to three cargoes each season, whereby they are considerable profitters by the trade, without any bounty whatever, but the fruits of their industry, altho' they have a pretty long voyage out and home; while we, with the fish swarming at our doors, can hardly make the half of one single cargo, and even with a considerable bounty are frequent losers.

Does not a knowledge of these things point out the necessity, and call upon the good sense of the nation, for an alteration in our too long persevered-in absurd system? or, is it by fate decreed, that we shall for ever bungle on in the old track, continuing to render ourselves ridiculous in the eyes of Europe, and perpetuating a sad reflection on the industry of a people, otherwise famed for that

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virtue all the world over? I hope not, for the sake of honour, as well as interest.

I suppose there can be no just cause of fear that Parliament has introduced any thing into the bill that can be literally termed *speculative*; I apprehend, what is chiefly alluded to in that phrase, is a fear for the bounty vessels being obliged to fish in the Dutch manner by the busrope; a practice that is so far from being new, or deserving the appellation of *speculative*, that our own ancestors practised it, with much success, several hundred years ago, (for the truth of which, see *Interest of Scotland considered*), who it is very probable taught the Dutch, and they have invariably practised it to this day.

And I will venture to aver, that, until we return again to this our own old practice, never will this branch of business be brought to form an important national staple, or a regular profitable private one; both which it well may, and, I hope, will soon be made. Impressed as I am with these ideas, it is impossible to reflect without pain upon the great aversion shown by our practical fishers to this method, so diametrically opposite to their own and country's interest.

I do not by any means want, and hope I shall not be understood, as wishing to recommend putting a hardship upon any one, by forcing this practice upon them, as it would then perhaps be thought, and would much rather like to see people gradually led to it, by a proper ex-

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ample being set them, when its advantages will recommend it, and, I am morally certain, it would soon come into general use.

Although the Dutch have long carried on the trade to great purpose indeed, I will not admit that they have arrived at the utmost point of perfection it may be possible to carry it. Therefore I would not implicitly follow their practice in all things, because our situation is so much in our favour, that we can carry it on with much less expence, not only in the value of our vessels, but of sundry things else. However, I would cull and select from theirs, as I would from every other country, in helping to complete a good system; nor, in doing this, should even speculative schemes be rejected altogether, when they appear to be founded on reason, without investigating their merits, or trying their effects.

But the formation of such a system is rather too much for a private person; it is therefore to be regretted, that Government will not do something this way, for the public may be assured it is a measure absolutely necessary to be done, to ascertain the true value of our fisheries, and put them upon any thing like a good footing. If they will not, to whom can the people of Scotland with more propriety look up than to the gentlemen of landed property. May I hope to be excused for presuming to suggest a hint to the Members of the Highland Societies of London and Edinburgh, &c. who, actuated by a true regard to the interests of their country, are now forming themselves

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themselves into a Joint Stock Company, for the laudable, generous, and patriotic purpose of raising funds for erecting the intended villages, &c. &c. in the Highlands and Islands, to take this into their serious consideration, and employ a part of their stock in that way.

Or, if it be incompatible with the rules they have laid down to themselves, to prosecute the fisheries on the Company's account, that some of the individuals of it, or others, form themselves into a separate company, under the firm of *Highland Society Caledonian Fishing Company*, or any other they think proper, to do this upon proper principles of decked vessels, using their nets by the bufsrope.

These two Companies may mutually assist and support each other for a few years (when, it may be depended upon, that the plan will be found profitable, and followed out by many hands), the one by beginning to build villages in the most central situations for the fishery, the other by furnishing inhabitants to these villages, who being in permanent employ, and upon certain wages, will be able to pay a reasonable rent, if the houses are built upon moderate terms.

The good that may result to the public from the execution of this plan may be immense; for such a company can better afford the expence of procuring able instructors for improving our fisheries than private individuals can; and a little practice in their employ will breed a parcel of

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of capable fishers, from among whom private adventurers may be furnished with men fit to be entrusted in the execution of fishing schemes; and thus the general interest will be promoted in a singular manner. For then shall we produce, from among the hardy sons of Caledonia, perhaps the best fishers in Europe, as we have done before. For I will not allow myself to doubt, but that, in the course of a few years, we shall as much excel the Dutch at cod and herring fishing, as we now do in whale fishing.

As the nation has before now been bubbled by a fishing company, wherein a considerable capital was almost totally sunk, perhaps many will suppose it impossible to carry on the business to any good account by a company again. Many instances could be condescended upon to prove, that company matters are and may be conducted with much propriety, and œconomy too, if people of integrity are employed in the charge. However, to obviate the objection, I would beg leave to recommend, that this plan (if at all) be at first taken up upon a prudent, cautious, and small scale, with a few vessels only, until its utility and profitableness point out the propriety of extending it, which may then be done by degrees, at less expence, and to better purpose in every respect, as knowledge is acquired from experience.

If this is done, the writer hereof pledges himself to prove, that it will as effectually promote and steadily support

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port the interest of the intended villages, and that of the individuals in the company's or other adventurers employ that may be resident therein, (and they may soon be very numerous,) as the interest of those to whom boats may be given, should that generous proposal ever take place. It will also greatly add to the commerce, prosperity, and strength of the nation at large, by laying a solid foundation for breeding, in continual succession, a race of thorough-bred fishers, as well as the hardiest and best of seamen.

If you, Sir, shall think this worthy of a place in your paper, I will pursue the subject through the course of a few letters, and, with all due submission and deference to superior abilities, presume to give a few hints as the outlines of a plan for putting this in execution, upon what appears to me the most prudential and least expensive principles; but, as this is a pretty long one already, I shall for the present conclude, Sir, your's, &c.

C. F.

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LETTER II.

S I R,

I SHALL now proceed to give the outlines of a plan for prosecuting the fisheries upon what appears to me the most prudential and least expensive principles. I will beg leave to do this, or at least attempt it, in such a way as may serve the purpose of being experimental and instructive, and thereby lead to the reformation of our operations, and the introduction of a new system.

I am well aware, that I have undertaken a task that lays me open to be cavilled at, and perhaps censured for presumption; however, I will endeavour to implement the promise to the best of my abilities: Promising, that it is only given as hints to be improved upon, by those of greater judgment, to whom, and the test of reason, they are thus humbly submitted to public consideration.

Having nothing in view but the good of my country; and -as it is impossible for human prudence to devise a scheme altogether unexceptionable, I will console myself with a hope for the indulgence of the candid and liberal-minded to the imperfections that must unavoidably be conspicuous in the execution of this plan. For "none can accomplish more than they intend." I wish I could equal mine.

Suppose there were from nine to ten thousand pounds subscribed for this very important national purpose, I will

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will endeavour to show, that ten vessels may be built, and more or less in proportion to any given sum, an ample stock of nets, lines and other apparatus, with all other kinds of materials and stores requisite for such an undertaking, and reserve a considerable part of the capital unappropriated to answer emergencies, until, as is formerly said, the profits and utility of the scheme show the propriety of extending it. In doing this, it will be necessary to divide the subject into separate heads.

1. Of the size, construction, and value of vessels fit for the trade.
2. Of the quantity and manufacture of nets and lines requisite.
3. Of casks, salt, fish curing, &c.
4. Of fishing for herrings, cod, &c. &c. combined with various other matters relative thereto.

Of Vessels fit for the Fisheries.

THERE have been very various sentiments delivered upon this subject of late; several, whose names are very respectable, having declared, that the largest vessels, such as the Dutch use in the trade, are best, and only fit for our imitation, both in rigging and construction of the hull. From this opinion I must beg leave to dissent, being fully convinced that much smaller ones are sufficient for our purpose;

purpose; and this constitutes one of our greatest advantages over that people; whereby the business can be carried on equally well by us in vessels of one-fourth part the value of theirs, consequently at so much less advance of capital, less risk of loss, and less expence of tear and wear.

There is reason to suppose, that, if the Dutch could have obtained a settlement in any of the Isles of, or upon the continent of Scotland, as tradition says they much wanted, their system of operations, as well as the size of their fishing vessels, had been different from what they are. Their great distance from the fishing ground lays them under the necessity of using large ones for two reasons:

1st, As they cannot expect to make many voyages in the prime of the season, they must be able to carry a cargo worth while, lest they be not able to regain a proper station to fall in with the shoals of herrings again, while they are in good condition; and 2d, As they cannot go on shore near the fishing ground to barrel and pack their fish, that process must be done on board, and for which large vessels are fittest.

I have maturely considered the Dutch buss and dogger, the Flemish and Yarmouth luggers, as well as the smack and wherry rig, and have conversed with people so highly prejudiced in favour of each, as to declare that which they happened to be accustomed to was only fit or best

best for fishing. From which I am led to conclude, that any of these, or indeed any other, under judicious management, are perfectly competent; but that those who, in the sea phrase, are least *wind taught*, or upon whose rigging the wind has least impression, is fittest of all, as they will drive least, and ride easiest at either anchor or nets, and just such as our ancestors used some hundred years ago.

Although I am neither seaman nor ship carpenter, I will try to describe what meets my ideas as fit to prosecute every branch of the fisheries, particularly in the Highlands, among the islands and lochs, and what I would beg leave to call a *Caledonian Fishing Boat or Galley*.

She ought to be fit to lie near the wind, and sail well, so as she could readily clear a lee shore, make quick passages out and home, and prevent the crew from being intimidated to prosecute fishing, either in the open ocean, in the narrow channels among the islands, or in the lochs, wherever there was a prospect of success; therefore she should not be large and weighty, such as the Dutch ones are, but quite the reverse.

Suppose the hull to be of burthen from twenty to thirty tons, rather longer than the common construction, tolerably sharp under water, that she may go well, but thrown out full above, that she may fall lightly in a hollow sea, as well as ride easy, and at same time have a roomy
H deck,

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deck, deep waisted, from two to two and a half feet the whole length, to give shelter to the men, built either of carvel or clink work, rather light than strong, for the convenience of rowing and sailing well.

The principal part of the hold to be divided by three stout bulk-heads across; these again divided by two others, running fore and aft, making six divisions, which, with the ceiling within them, are to be caulked quite tight. These close apartments are for the reception of fish in bulk; and in them, when tight, I will venture to say, that they may be as effectually pined or salted, and preserved in as thorough safety as in the best vats or close casks, until they are landed to be packed in barrels. The rest of the hold to be divided to the best advantage for stowing the men, provisions, and fishing stores.

Such vessel, although built light, will be so completely bound and stiffened by these bulk-heads, that it will strengthen her greatly; and as fishing ones are for the greatest part of their time in little else than ballast trim, may be quite competent for the trade, particularly in the Highlands, where they will be much afloat in the deep water loch harbours.

The rigging of her to consist of a pretty large lug sail, in the Flemish manner, rather square or broad in proportion than of too much hoist; the principal or main mast to strike, having a middling long mast head, or fit cranns for setting up a topmast, upon which a topfail may

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may be hoisted; a small spar, placed forward at the inside of the stem, as a foremast, on which a small lug fore-sail is to be set, with a small light spar, to be occasionally used for setting a small mizen sail upon, placed pretty far aft.

These small masts require neither shrouds nor stays; the main mast needs a good stout stay, but no other shrouds than a single one in each side, standing much aft, fitted with and taghted by a tackle, the lowermost blocks of which having hooks, for hooking into eyebolts or straps: The main haulyard being always hooked to windward, forms an additional stay. I suppose it is hardly possible to devise any rig that is simpler or lighter than this, that can be furnished cheaper, or is better adapted to fishing operations.

It is allowed that this rig requires more hands to work them than the common sloop one, consequently is not so handy for coasting: On that account, I had contrived, what I think an improvement for shifting the lug easily; but as what is meant to be said of them here relates to fishing, for which only they are recommended, and as a fishing crew is quite competent to work them in all emergencies, in the way they are usually fitted, shall spare the description.

One of the principal reasons for recommending a light construction, both in hull and rig, is, that they may be rowed with oars occasionally, as is before said.

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But, at same time, well knowing that a proper number of common oars, or rather sweeps, as they are called, when large enough for such a purpose, must be cumbersome on board a small vessel, that should be clear of every thing but what is absolutely necessary for fishing, my fancy went to work to contrive such as would be most powerful in effect, and at the same time stow in the least room. In this also I think I have succeeded; but as the description would be tedious, shall defer it at present: If it shall be required, or found necessary, it will be done afterwards.

These small vessels, when fitted in the manner I have attempted to describe, will, I presume to hope, be found singularly convenient for the fisheries. In the first place, they will make excellent sea boats, in which men accustomed to the sea will not be afraid to venture out, and remain in almost any weather that other vessels can keep it: In passing through narrow fairways, or round head lands, they will be found very fit; for, by using a few of their oars, they will clear lee shores, that no others, not having the same convenience, could do.

In driving over fishing ground, they will be as fit or fitter than most others to recover it; for when wind fails, they can row. So that in the cod fishery, none, not even the wherry, is better adapted. In working the long line, more or less sail can be used, as may be needed; and when there is not wind to work the vessels with sails, the lines can be either shot, or hauled by the oars.

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In the herring fishing, among many other conveniences, they will have this, that they will be as fit to work a fleet of nets of four or five hundred fathoms long as any other, and that either in the open sea, or in the lochs; for they can shoot the nets by the oars, when there is not proper room or wind to work the sails, just as well or better than in a boat.

When the main mast is struck, laid fore and aft, supported by crutches for the purpose, at proper height to give head room, and the main sail spread over, it will form an excellent awning, keeping the deck comfortably warm in cold weather, whereon people can perform the work of gutting and rolling the herrings in salt, preparatory to their being deposited in the divisions of the hold, much handier than when exposed upon an open deck. If, on the other hand, the weather is warm, this awning will keep the deck commodiously cool, and preserve the fish from being injured by the heat of the sun.

That fish of all kinds, when put into these close apartments of the hold, with a proper quantity of salt, can be preserved for several or even many days, until they be conveniently landed, is too consistent with reason to entertain a doubt. The only objection that can occur is a supposition that the jabbling of the pickle, when the salt is dissolved, might retard the vessel's way, or otherwise prove inconvenient. To do away any fear of the first, it is to be observed, that well smacks, which always have a body of water within them, go as well as any others.

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However, in very rough weather, part of the pickle might be taken off, at holes properly placed, and fitted with spigot and fossets, or good plugs, and put into casks, to be returned upon the fish when the weather abates. If foreign salt is used, it does not so soon dissolve as British.

This method of stowing and salting fish in the hold will not only save the crew a great deal of trouble and labour, that otherwise would be necessary in packing them in barrels, but also save much waste of hoops, and damage done the casks in their tops and chimes, by frequent upheavings, which operations can be much handier done on shore.

When or if ever the fisheries are carried on in the open sea with decked vessels, not very distant from where they can run to land their fish to get casks for them, or have them deposited, where they can be kept in a state of preservation, instead of half cargoes that are presently procured, in the course of three months or upwards plundering in the lochs, it is more than probable, that it may and undoubtedly will frequently happen, that they will make one, two, or even more full cargoes, of from ten to fifteen lasts in a week, and the quantity in a season may be immense.

These vessels will command many other advantages that may perhaps be mentioned in the continuation of this subject, but, above all else, that they can be furnished

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ed cheaper than any other kind I know of. I have lately communed with an intelligent ship-carpenter, who offered to contract or oblige himself, upon being furnished with materials, to build the hull of such a one as described, of thirty tons, carpenters measure; the expence of which should not exceed L. 80 Sterling, completely finished.

I am convinced, that furnishing sails, anchors, cables, and every thing else, necessary to complete the equipment and fit the rigging, might be within, but would not exceed L. 60 more; however, to extend the calculation ten pounds farther upon the whole, brings her to L. 150 Sterling, which, I have reason to think, is much beyond what it may be done for, yet is no great sum; as, at this rate, four such vessels can be sent to sea, completely fitted for the business, at the usual rate of one sloop or smack of sixty or seventy tons burden, whereby the chance of success is increased four-fold on the same advance of capital.

And, instead of giving a few months work to twelve or fourteen hands in the usual way, will give permanent employ to thirty-six or forty men and boys the whole year round; for these are meant to be appropriated solely, and should be constantly employed in it, as far as wind and weather will permit, and the produce of their labours exported in larger vessels.

If it should happen that master builders will not readily agree to furnish the hulls of such vessels completely finished,

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finished, in the manner described, for the sum mentioned, were the measure to be adopted, a man shall be pointed out who has capacity, and perhaps will do them for less money, upon furnishing him with the necessary materials, by which means the work could be depended upon to be completely and substantially done; for there would be no temptation to put in a bit of wood, but what is found by nature fitting for the intended purpose, and quite clear of sap-splill or soft wood, which can add no strength, but, on the contrary, is a nuisance, as it soaks in and lodges water, that increases dead weight, and contributes to the decay of other wood.

If the observation is allowed to be just, that the country who can carry on its manufactures, or other branches of trade, with the smallest capital, and at the least expence, will have the advantage of, and be able to undersell all others, this then, I fondly hope, will certainly be the case with Scotland, when we assume spirit to prosecute our fisheries upon proper principles, in the way most suitable to our singularly advantageous situation. As a small help to the accomplishment of such a desirable object, the foregoing is humbly suggested as part of the intended plan.

Now ten such vessels will occupy L. 1500 of the supposed capital. And I shall endeavour to ascertain, or at least give a guess at the value of nets and lines that may be requisite to form a sufficient complement for these.

Herring

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Herring nets are made of such various lengths and breadths, as well as of twine of different size and value, as must puzzle people who turn their attention to the subject at first, and that not a little.

For instance, a Yarmouth net consists of four pieces, called deepings, of twenty-one yards long, and fifty-two inch meshes broad, laced together sideways, making about eleven yards breadth or depth.

At Greenock, Campbeltown, and in Bute, a net consists of four pieces also, of the same breadth, but only twelve yards long, and various in size of mesh, from less than two to two and one-half inches, but the greatest part two inches.

At Dunbar, it appears from Mr Fall's report to the Committee of the Honourable House of Commons on Fisheries, their nets are forty-five yards long, whether made in deepings or not is not said; but as they are only ten yards deep, although called eighteen score, I suppose they are only 180 meshes, as that, at two inches, corresponds exactly to ten yards; this apparent difference is perhaps owing to its being a practice there to count every knot in the warp, whereas it requires two to each mesh.

In the Moray Frith, in the neighbourhood of Fort George, they are not so regular in their size, either in length or depth; and they are wrought with the single instead of the double knot—a very exceptionable practice
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indeed, that renders them liable to pucker when any thing catches hold of them, when the knots run, and they become uselefs.

Now, to strike a criterion whereon to form a calculation, it is necessary to ascertain the square contents of yards in each of these nets; previous to which, it is to be observed, that what is called a two-inch mesh measures this only when drawn angle-ways; for it is but one inch betwixt each knot when square. Therefore, in the measurement of nets, they are supposed to be drawn to the fullest stretch they can bear, both in length and breadth.

At Yarmouth, they are invariably wrought of a two inch mesh; now 200 meshes of two inches gives 400 inches; this divided by 36, the number in a yard, gives 11 the depth; this again multiplied by 21 yards, the length, gives 231 square yards in the net. The price paid for netting there, I am credibly informed, is 10 d. per score, or a halfpenny per yard, (in cases of hurry or demand, perhaps a little more), consequently working this net will cost nine shillings and seven pence halfpenny. If the purchase price is one pound eleven shillings and sixpence, as it is said to be, there must lie one pound one shilling and ten pence upon what they call the lint or twine, the price of which last year was four pound five shillings per cwt. or 9 d. per lib.; therefore the net must weigh 29 lbs.

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A Dunbar net, being 45 yards long by 10 broad, is 450 square yards, and is 12 yards less than two Yarmouth ones; notwithstanding which it is valued at L. 4. This is about 30 per cent. more than the price of them, and is partly on the twine, which, at Dunbar, is 11 d. per lib. being 2 d. more than the other, and on the working, which is rated at 7 d. the yard long by ten yards broad, this would only cost 5 d. at Yarmouth; which is something singular, considering labour in general is much cheaper in Scotland than in England; and it is particularly so of this branch in the west, or wherever it is practised in it.

A Bute or Campbelton net, of 12 yards long, and 200 two-inch meshes is 11 yards deep, and contains 132 square yards; this, at the Yarmouth price of netting, would cost 5 s. 6 d. instead of which, I have reason to think, it can be, and is done for 3 s. 4 d. or even under, which is 60 per cent. lower, and above 110 per cent. under the Dunbar rate. They are made of very fine small twine, and weigh from five to five and a half or six pound the net. Our fishers esteem nets the more as they are fine; they find these answer best in smooth water loch fishing; but they would have no duration in deep sea fishing; for which pretty rough weather is found most favourable for the fish striking in the nets; in which, with a weight of fish in them, these fine ones would soon go to pieces.

As I wished to acquire some knowledge of the manufacture of nets, I purchased rough hemp, and made be-

twixt

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twixt three and four thousand square yards, had it dressed, spun, twisted, netted, joined into nets, barked, and mounted completely in the Dutch manner, under my eye, and partly with my own hand; in the mounting I had the assistance of a Fleming from Ostend, one of the most intelligent fishers I ever conversed with, and I have with many.

I found hemp yarn, spun to the grist of from four to four one fourth ounces the hier, or two cuts of the common reel, laid two fold, and twisted to the degree of common stitching thread, is much of the same size as the twine of which the west country nets are made; this, after paying for the different operations of spinning, doubling, &c. (it was twisted indeed in my own family), stood me about 10 d. per lb.; one and a half lb. of this made the deeping, and six lb. the net; I got the deepings wrought at 10 d. each; so each net stood 8 s. 4 d. besides barking and mounting.

Now three and a half of these deepings measure 42 yards long, equal to two Yarmouth ones of 12 yards; therefore, if three and one-half deepings are wrought for 2 s. 11 d. one piece of 21 yards at that rate will cost one shilling and fivepence halfpenny; but were a more liberal price given, such as a shilling the short, and 1 s. 9 d. the long deeping, this is still 30 per cent. under the Yarmouth price; and at this rate, I am certain, almost any quantity might be got wrought.

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Since these nets were made, I got a small piece of Ostend net, and am told it is much the same size as the Dutch use; the twine is about double the thickness of the west country net twine, but considerably smaller than the Yarmouth or Dunbar must be, as 42 yards small twine deepings weighs five one fourth lbs.; this, were the twine as thick again, will be ten and one-half lbs. consequently 21 yards will weigh five and one-fourth lbs.

I have lately conversed with a twine-spinner, and find, that good hemp, at present worth L. 1 : 10 s. per cwt. will yield 84 lbs. of dressed hemp, fit for twine-spinning, and about 24 lbs. tow, worth 3 s.—the dressing with oil will cost from 4 s. to 4 s. 6 d. which reduces the value of the hemp to 5 d. per lb. This can be spun for 3 d. of the grist of 8 oz. to the hier of yarn (1 oz. of this twine measures 40 yards), which brings the twine to 8 d. per lb. Four deepings of 5 1-4th lb. each, is 21 lb. and at 8 d. is 14 s. sterling,—working four deepings, at 1 s. 9 d. is 7 s. Thus the net is made, of the same dimensions of a Yarmouth one, for L. 1 : 1 s. sterling.

Seventy such nets will make a fleet of 735 fathoms long of mesh work, by 11 yards, or five and one-half fathoms deep. This, when taken in, in the usual manner of one third, makes 490 fathoms at the back rope, and is rather more than sufficient for a vessel of 30 tons. It will contain 16,170 square yards of a two-inch mesh; but as I suppose two inches is rather small for deep sea fishing,

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fishings, for a little distance from land, the fish is always found of a larger size and better quality.

Were they made of a two and one-half inch mesh, the same number of meshes will extend their depth to seven fathoms, at the same or less expence of workmanship, as it occasions many fewer to be wrought in length; for, were the same number wrought as of the two inches, as 11 yards gives 14 in breadth, then 21 in length would give betwixt 26 and 27, so that there is nearly one-fourth part less value of work in the two and one-half than in the two inch mesh net.

There will, no doubt, be a small matter of more twine required; but when the proportion of it is considered that is occupied by the knots, two of which being necessary to each mesh, and that there are nearly one-fourth fewer in the one than the other, it cannot be much; however, allowing it to be two and one-half lb. this hardly compensates the value of work saved; therefore the price of the two and one half inch mesh net, altho' three yards deeper, and sixty-three yards more square measure, is much the same as the other.

If it is found necessary to adopt the Yarmouth size of twine, then 29 lb. will be needed to the net. This, at 8 d. is 19 s. 4 d. working 7 s. which brings the price up to L. 1 : 6 : 4 sterling. By the first calculation, 70 nets will cost L. 73 : 10 s. and by the second L. 92 : 3 : 4.

For

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For mounting these, in the Dutch and Yarmouth manner, there are needed, for each fleet, first, 2520 fathoms of small line, made of small best white rope-yarn, laid three-ply, the one half of which spun and laid the right way, the other half spun and laid the wrong way, to be laid on with strong twine round the upper edge and ends of the nets, for strengthening them, as they are suspended by this to the back-rope; the two different lays act in opposition to each other, and prevent their twisting and writhing, as a single rope does when wet.

The next is short pieces of line, about 21 inches long, made of small white rope-yarn, twisted hard, and laid double, having a bight or eye on one end, through which the other end is passed, and thus put upon the small lines on the edge of the net, at about a span or seven and one half inches distance from each other, for tying the nets to the ropes upon which the corks are put. Each net will require a hundred, when put on at the distance mentioned, and 7000 for the whole fleet. The rope yarn for this will weigh 35 lb. at 5 d. 14 s. 7 d.—twisting or making these 5 s. or 6 s.—and for the whole 11. sterling.

As he was a foreigner who recommended these to me, who spoke the language very imperfectly, and could not give a proper name to them, nor describe the method of making them, on applying to a rope work, I found they could devise no way for making them but plaiting by hand. This I saw would be tedious and expensive. Upon a little reflection, I stuck a small iron spike, the point bent

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bent a little upwards, into the edge of a shelf, a little distance from a wall, and another spike into a lead weight of 2 lb. the point bent sideways, declining down a little. By putting the ends of the rope-yarn, cut in proper lengths, upon these spikes with a hitch, and the weight twirled round, gives it any degree of twist needed very quickly. When the upper end is also brought down to the lower spike, and suspended by the bight in the middle, the weight being twirled round again, gives it the necessary after-twist. And by this simple method, a boy of ten or twelve years of age may make several hundreds in a day; although, perhaps, where they are in the practice, they may still have a better method.

The back-ropes, upon which the corks are put, should also be put double, the one part spun and laid the right, the other the wrong way. As each net requires seven fathoms, besides spliced eyes at the one end, and about eighteen inches at the other for tying, the single length required is about 530 fathoms, the double 1060. This is spun of best hemp into small yarn, and laid nine threads, which girths about an inch, and will weigh 270 lbs. This, at 5 d. per lb. is L. 3 : 10 : 10 sterling.

Nets of small twine being light, require but little cork, in proportion to those weightier; for such a fleet of west country nets, two and one-half cwt. would answer, allowing for waste in cutting; for those of double weight I will state 5 cwt. at 20 s. which, with cutting, may be L. 5 : 5 s. sterling.

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Their size may be various, as the cork will cut, putting on a larger and lesser one alternately, but their shape should invariably be that of a longish oval, the sides, ends, and edges pared as smooth and free of rags as possible, to prevent their injuring the nets, notched on both sides of each end, for receiving the ropes betwixt which they are put, and secured at each end, and in the middle, by tarred spun yarn, or thick strong twine, for which purpose I will allow L. 1 sterling.

I shall proceed with the subject in my next, and am, &c.

F. C.

K

LETTER

L E T T E R III.

S I R,

I WILL beg leave to say a few words here of the method of fastening the nets to these corked back-ropes. Supposing them mounted in the manner represented, these ropes stretched betwixt two posts, or otherwise, three feet from the ground, the net laid along under it, beginning with the end having the eye; take the outermost short seifing or strap in the right hand, placing the left thumb upon the back-rope, pass the strap over the thumb and rope the first turn, then pass it two more turns round the rope and strap, a little forward of the point of the thumb, a third turn round the rope only, bringing up the end betwixt the rope and strap, drawing out the thumb from below the first turn, and put in the end of the strap in its place, keeping the point of the thumb upon the point of it, until, with the right hand, the edge of the net is pushed from you, so as to draw down the slack of the strap, to keep the point secure. When the straps are all put on in this manner, exactly at five inches distance, as they are put on the net at $7\frac{1}{2}$, it takes it in just the usual proportion of one third; and, by attending to this simple rule, he who never mounted a net may do it as effectually and well as he that has done it often before—a little practice will teach to do it quickly. The hitch described is both secure and easily done and undone; by it the seifings that suspend the net to the bus-ropes, as well as the buoy-straps, are secured to the bus-ropes.

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The seifings for putting to the nets to the bus-ropes are used of various lengths, from five to ten fathoms; they are also made of best hemp, spun into such threads that a rope of eighteen of them measures about $1\frac{1}{8}$ inch circumference; they are put on at ten fathoms distance. Reckoning ten fathoms to each, which is rather too long, the fleet requires 50, and 500 fathoms length, which will weigh 150 lb. and at 5 d. is L. 3 : 2 : 6.

We will allow L. 4 for twine and workmanship of laying the deepings into nets; and as 10,000 square yards of nets were barked, &c. at Greenock for L. 2, I suppose this fleet may be done for L. 8 or L. 9, but I will state L. 10.

Now, 70 nets of the first calculation, at 21s. each, is	-	-	-	L. 73	10	0
2520 fathoms small line, for lacing on the edges and ends of the nets, 200 lb. at 5 d.				4	3	4
7000 short straps, with twisting and making,				1	0	0
1060 fathoms of back-ropes, weighing 170 lb. at 5 d.				3	10	10
5 cwt. of cork, with cutting,				5	5	0
Spun yarn for securing the cork, and workmanship,				1	0	0
50 seifings, 500 fathoms long, weighing 150 lb. at 5 d.				3	2	6
Twine and workmanship in lacing the deepings into nets,				4	0	0
				<hr/>		
				Carry over	L. 95	11 3

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Brought over	L. 95 11 8
Barking the nets and ropes,	10 0 0
	<hr/>
	L. 105 11 8

At this rate, 20 fleets, being two to each vessel, will cost

	L. 2111 13 4
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There will be about 540 fathoms of bufs-ropes required for such a fleet; because, in riding at the nets, it is necessary there be 30 or 40 fathoms, or even more, distance betwixt them and the vessel, to prevent her motion from agitating them, but as little as possible in blowing weather. Those next the vessel, having always most strain, require to be thickest. I will suppose them to run thus:—

120 fathoms five inch hawser, weighing 6 cwt. 1 qr.—120 fathoms, 4½ inches, weighing 5 cwt.—120 fathoms, 4 inches, weighing 4 cwt.—and 190 fathoms, 3½ inches, weighing 4 cwt. 3 qrs.—making 20 cwt. in all, at 34 s. L. 34 0 0

45 small casks, the size of half anchors, for buoys, placed upon the bufs-ropes, at ten fathoms distance, with seizings and straps, at 2 s. 4 10 0

3 larger casks, for more conspicuous buoys, with straps, &c. at 3 s. 4 d. 0 10 0

Carry over L. 39 0 0

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Brought over	L. 39 0 0
Spun yarn for marking the ten fathom distances on the bufs-ropes,	1 0 0
	<hr/>
	L. 40 0 0
Ten sets of these, being one to each vessel, amounts to	L. 400 0 0

These calculations, it is hoped, will not be found far from the truth. They are meant to be rather over than under. Those of the ropes for mounting the nets are made from measuring and weighing a certain quantity of ropes made and barked at Yarmouth, for the express purposes they are mentioned.

The two largest bufs-ropes, it is supposed, may serve the double purpose of cables to small vessels, and lessen their outfit expence. The quantity of nets is with the largest for the size of these vessels; as 440 fathoms make half a mile, I reckon that sufficient: But as herrings make excellent bait in cod-fishing, every vessel that is employed in that branch ought to be furnished with a certain proportion of nets to catch them (for they are to be got at all seasons round our coast), I thought it better to include two fleets of 50 fathoms each for this purpose here, than make a separate calculation for them afterwards.

Besides

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Besides all these, it would be necessary for such a company to employ from L. 500 to L. 1000 in the manufacture of nets, to bring forward a gradual supply, as the stock will be constantly wearing out. It will be found of great consequence to every adventurer in the fisheries to attend to this circumstance, and keep a proper supply, particularly if their situation is such, that a quantity could not be got to buy at a short notice.

To those who were willing to adventure with a small capital, the last fishery bill was very indulgent indeed; it enforced no more than 250 square yards to the ton. This is only 7500 for 30 tons; now 40 of the forefaid nets, of 2 inch mesh, measures 9240 yards, and 2½ inches, £1,760.

I have been the more tediously minute in these calculations for two reasons—First, That, when I began to speculate upon the subject myself, some years ago, I could find nothing to direct me. Supposing that others may find themselves in the same predicament at the present period, for their information these are offered; from them the expence of making, as well as mounting, any given quantity may be easily ascertained. If it shall be found useful, the wish of the writer will be attained.

And, secondly, because a gentleman, very respectable indeed, both as to character and fortune, to whose advice much deference seems very justly to be paid, has given, what I have reason to think, and, if farther is necessary,

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necessary, am ready to prove, an exceeding high calculation of the value of nets, and what I also think a mistaken opinion, relative to the now necessity of two fleets of nets for fishing vessels. Mr Fall, I hope, will excuse me for thus differing in sentiment, as I cannot by any means attribute to him an intention either to mislead or deceive.

If nets are only made at Dunbar by the fishermen themselves, for their own use, and valuing their time at what they think they are entitled to for it, they may put the price they are said to do upon them; but I apprehend it is of some consequence to endeavour to convince my countrymen, that this most essential requisite for prosecuting the fisheries can be made much cheaper than is there charged.

As to opinions, they are free and various, as the object happens to strike upon the forming mind. I will only beg leave to observe, that, in early ages, when our ancestors seem to have understood and practised fishing better than we do at present, they were at pains to shift their fleets as often as possible. Upon the same principles, the Yarmouth people never fish above three or four weeks at once with a fleet, without shifting, although they meet with no accidents to need repairs, and as much oftener as is necessary.

It is notorious the Dutch do shift; but their operations being carried on at a distance from home, prevents their

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their doing it so often as at Yarmouth. Reason points out the propriety of this measure; for nets are as liable to be injured in the first, as any other part of the season; and if it shall so happen, without another fleet to shift them, the chance of the season may be lost in its very prime, although it might have been such a successful one, that one or two nights fishing would have compensated for the additional expence.

The sooner nets are repaired, after they begin to break, so much the better; therefore prudence should dictate to every intelligent adventurer, that, whatever quantity his vessel fish with, there ought always to be a good proportion kept in reserve: For, should no accident happen to need repairs, which is hardly supposeable for an article so liable to casualties, in the long season, when the operations may be continued, it will be absolutely necessary that they be dried and rebarked, else they will be so weakened, by being continually wet, that they may be completely worn out in the course of one season.

The manufacture of nets is an article that merits peculiar attention, if it be possible to rouse the spirit of our people to the prosecution of the fisheries upon right principles, as great quantities of them will be needed; and it will be found of much consequence to the public, that provision be made for furnishing adventurers with those of a good quality, upon reasonable terms, made upon some general principles as to length, breadth, weight, and size of the mesh. The hemp should be of the very best quality;

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quality; the manner of spinning and twist given both in the single and double is not only of importance in the wear, but also to the success of the fishery.

This branch is peculiarly applicable to the intended villages in the Highlands, and may give employ to many of their inhabitants. It is a simple and light work, more fit for women, boys, and girls, than men, either of whom, old or young, may soon learn it. About Yarmouth and Leostoffe, they are entirely made by women, poor people kept in their charity workhouses, and youngsters, who are put to it as early as seven or eight years of age, by which means they learn to do it with great facility.

About all towns there generally are a number of youths of both sexes, that, either through want or neglect of their parents, trifle away their time in idleness, and acquire villainous habits, which renders them dangerous in and a nuisance to society through life, who might become valuable members of it, were they employed in this or any other useful work, wherein they could earn a tolerable subsistence, and inure them to early habits of industry. Is not this a matter worthy the attention of all Magistrates of royal boroughs, as well as that of the community at large?

My next shall give the value of lines, &c. In the mean time, I remain, &c.

C. F.

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LETTER

LETTER IV.

S I R,

MY last concluded with an estimate of the value of nets. Fishing lines are of much less value than a proper quantity of the others for equipping vessels. Hand lines are used of various thickness and length, according to the depth of water they are intended to be employed in. What is reckoned a good size for the Iceland fishery is such as will answer well for long lines, although they will amount to a small matter more than might serve the general run of our fisheries. I will adhere to them in this calculation. They are usually wanted, and made 120 fathoms long, and weigh from 8 to 9 lb. fold at 10 d. per lb. and cost from 7 s. to 7 s. 6 d. Supposing the crews to consist of ten people, it will be necessary there be two or three spare lines for each, either on board or near at hand, in case of accident. This makes 40 to each vessel, which at 7 s. 6 d. is L. 15 0 0

200 fathoms of small lines for snoods, weighing 4 lb. at 1 s. 0 4 0

200 hooks—they are used of very different sizes and value, from 2 s. 6 d. to 8 s. per hundred—but what answers at Iceland are worth about 5 s. 0 10 0

Carry over L. 15 14 0

Brought over L. 15 14 0

20 leaden sinkers, properly fitted with wires gives ten spare ones, in case of losses, which sometimes happen—they are made of various weights, from 2 to 8 or 9 lb.—I will value these at 2 s. 2 0 0

10 bramskins, or leather aprons, (painted or tarred canvas will answer for this)—but I will rate these at 4 s. each, 2 0 0

10 lb. small twine for putting to hooks, at 1 s. 0 10 0

1 iron clip with a wooden handle, for taking on board the fish, for each person, may cost, in the whole, 0 4 0

6 splitting knives at 4 d, 0 2 0

L. 20 10 0

Such a set to each of the ten vessels will amount to L. 205 0 0

The length of long lines is quite optional, and they are very differently mounted, many places having some peculiar manner of their own. Upon most parts of the north-east coasts of Scotland, the snoods are used about a fathom

fathom long, and placed from two to three fathoms asunder. This is by far too much, as it gives them fewer hooks upon their lines than they could admit of.

The Dutch, when they use the long line, and the English, in the cod smacks, mount theirs with snoods of twenty-seven inches long, placed a fathom distant from each other. These, when on board, are kept in longish baskets, bitted from end to end of it, the baskets having pieces of wood, with deep notches or groves in them, standing upright in one of the sides of the basket, into which the ends of the snoods are put, the hooks hanging outward. This prevents their entangling the lines, and is at same time extremely handy for baiting.

3550 fathoms of line reach four miles—
this at 7 s. 6 d. per 120, L. 11 2 0

3550 snoods thirty inch long, is 1500 fathoms, worth 2 s. per hundred, is 1 10 0

600 fathoms of lines for buoy ropes at 7 s. 6 d. per 120, 1 13 0

3 buoys of wood, fitted with flagstuffs, at 5 s.—15 s.—3 leather ditto, 1 s. 8 d.—5 s. 1 0 0

5000 hooks, to give some spare ones—those fit for this are 3 s. per hundred, 7 10 0

Carry over L. 22 15 0

Brought over L. 22 15 0

12 lb. small twine for putting to the hooks,
&c. with a reserve, 0 12 0

10 baskets, Supposing them worth 2 s. each, 1 0 0

L. 24 7 0

Ten such fleets, being one to each vessel,
amounts to L. 243 10 0

Perhaps it will be necessary to keep a reserve
of hooks and lines of more value, 200 0 0

L. 443 10 0

It will be of much importance to keep always a considerable quantity of salt on hand—I will state the commencement with 10,000 bushels. This at 8 d. is L. 333: 6: 8 sterling. It is an article that may be delivered at any station in the Highlands, by vessels bound to the east from Liverpool, at an easy freight.

Barrels must also be provided in ample store.—As coopers must be had, for trimming, repairing, striking up, and heading these; and as the staves and hoops can be delivered at a trifle of freight, in proportion to that of cask, it will be necessary for such a company to have them, or at least the greatest part of them, made at their principal

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principal fishing station. However, I will suppose 5000 of them bought to begin with; this is 500 for each vessel. The present price upon the east coast is 3s. 6d. each, and amounts to L. 875 sterling.

It would be tedious to enter into the minutiae of every article of provision necessary for ship stores. I will therefore cut short, by observing, that it will be much for the general interest of the trade to introduce a regular economical and wholesome regimen, to be varied a little through the different days of the week. As fish ought to compose the greatest part of it, a few simple and plain directions may be procured and given, for dressing these in sundry different ways, to diversify the treat, and prevent them from palling upon their appetites.

Besides fish of their daily capture, I will calculate the other provisions at 6d. per day the head, which I reckon abundantly sufficient. This, for 100 people, the crews consisting of ten men and boys in each of the ten vessels, is 50s. per day, and just L. 300 for four months, or 120 days. I will not compute for any longer time here, as I think the produce of their labours may be bringing in returns much about this time, or soon after.

Perhaps it may be found necessary to advance L. 400 or L. 500 partly in procuring instructing fishers, whatever nation they are of, and to the other fishermen, for the support of their families, before returns come round. The Dutch seem mighty jealous at present, having published

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ed prohibitory placards, to intimidate their people from entering into our employ. What Briton is there that ought not and must feel the insult of this? Does it not convey an idea, that they suppose us deficient in sense, spirit, ingenuity or judgment, to improve our fisheries, without the aid of Dutchmen? And is it not extremely mortifying to be thought so of? However, had it not been merited by our long and unaccountable bungling, it had not been offered. But let us not despond for all this. Should we be disappointed from a distant quarter, I hope there will be found at home a sufficient degree of spirit, an ingenuity too, to enable us of ourselves to carry improvements into effect, if only those who have it in their power will call it forth.

All fishers, or at least the best part of every crew, should be interested in the success of their labours, to encourage industrious exertions; therefore their monthly wages should be moderate. The premium ought to run upon the last of herrings, and the weight, not the tale, of larger fish, else they may take their station in shallow water, where the number taken may be many, although of little value, unless their dimensions are condescended upon.

The principal expences being enumerated, we will recapitulate them, to collect the whole amount of the first outlay.

10 vessels at L. 150 each, is	L. 1500 0 0
	<hr/>
Carry over	L. 1500 0 0

Brought over	L. 1500	0	0
20 fleets of nets, value	L. 2111	13	4
10 sets of bufs ropes with buoys, &c.	400	0	0
	<hr/>	2511	13 4
10 sets of hand lines &c.	205	0	0
10 fleets of long lines,	243	10	0
	<hr/>	448	10 0
Money employed in bringing forward a stock of nets,	500	0	0
Stock of lines, hooks, &c.	200	0	0
10,000 bushels of British salt, at 8d.	333	6	8
5000 barrels, at 3 s. 6 d.	1875	0	0
Provisions for 100 people, for four months, or 120 days, at 6d.	300	0	0
Money supposed advanced to fishers and their families,	500	0	0
	<hr/>	L. 7168	10 0
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It is granted there must be a considerable expence incurred in the outset, beside all these, in managers salaries, labourers wages, freights, &c. and, perhaps, the erection of buildings, unless the Joint Stock Company shall take the burden of these upon themselves: These are expences I cannot so easily, and will not pretend to ascertain. I shall only observe, that there remains an ample reversion of the supposed capital for all these; the returns of profit that may be expected and depended upon shall be mentioned in due course.

I wish to say as little as possible of the intended villages, as being a province I will not presume to interfere with; I shall therefore confine myself to a few buildings, that if executed, I think may tend much to promote the general interest of the fisheries; and begging leave to observe, that as the main ocean, not the lochs, is the principal field where either boats or decked vessels will carry on their operations with the best chance of success, the villages should be set down in the first secure station that is found within the lochs, that there be as little waste of time or labour as possible, in sailing or rowing to and from the fishing ground.

Of all the stations in the Highlands observable upon the map, and they are very numerous indeed, that of Lochmadie, or the small island of Hermetra, if there is any tolerable harbour formed in the channel betwixt it and North Uist, is as good, if not the best of any, not only on account of its central situation for the fisheries

to be carried on among the islands, in the Minch, Caledonian Ocean, &c. but its vicinity to the only practicable passage through the Hebrides to the Atlantic.

Here was the principal station of the grand fishery established in the reign, and carried on under the peculiar protection of King Charles the first; then was the time the importance and value of our fisheries seem to have been properly understood, and certainly would have soon arrived, under the royal patronage, to an exalted degree of perfection, had not our wily neighbours the Dutch, who, foreseeing the downfall of their own in the rise of ours, been at pains, by their vile machinations, to foment the domestic quarrel, engendered by the sour sullen spirit of the puritans, and marred the glorious prospect; nor have they failed to throw what obstructions they can in the way of every attempt that has hitherto been made towards their re-establishment.

The buildings meant above are cisterns of stone to be erected either below or above, but rather under the surface of the ground, for curing in pickle all kinds of fish, herrings in particular; and houses to be heated with a stove for drying fish at all seasons of the year, and in all kinds of weather.

This leads into the subject of fish curing; it is an extensive field, upon which much might and ought to be said; but as these letters are already, and unavoidably will be, extended to a length that may perhaps be thought

thought wearisome to many readers, it is necessary to be as brief as the nature of the thing will well admit of; I shall therefore confine myself to the most common methods of curing the general run of what is known to be a marketable commodity.

F. C.

L E T T E R V.

S I R,

FISH Curing is a branch of the fishery business of very great importance for promoting and insuring the continuance of quick demand and great consumpt both at foreign and domestic markets; it is what we are rather deficient in at present, leaving much scope for improvement, and sadly will we be to blame indeed if we do not improve; for vain will it be to think of meeting an experienced rival in a foreign market with any prospect of success, particularly in an article of food, unless much care, cleanness, and attention is bestowed, to present our fish for sale in the best condition they will admit of.

The many regulations of the Dutch upon herring-fishing, packing, and curing, appear rather finical, although it is probable they have been found necessary to check the procedure of a people prone to chicanery. Perhaps this is not the only instance that might be adduced to show, that strong measures have been found proper to

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to compel individuals to attend to what in the end is much for their interest, although troublesome or expensive at first.

Establishing concise, distinct, clear, and simple orders anent gilping, sorting, packing, and repacking will be useful. Herrings should be washed before repacking: If the bloody pickle is preserved as it ought, where it can be done, it should be passed through a searsh or cloth to separate the scales and gross matter from it, and boiled up and skimmed to purify the blood in it, before being put about the fish again, as nothing is more apt to turn rancid, or sooner promotes putrefaction than it does: If the bloody pickle is not preserved, boiling up a few of the damaged or smallest herrings, and putting the liquor among the pickle, will probably have the same effect in preserving the fish.

As much of their oil as can should be extracted from them; this must be done by luting with clay, small wooden or earthen cups upon a narrow bung hole, pierced on purpose in the upper side of the cask, when they and the cups are filled with pickle, in doing which the cup answers as a funnel, the oil, as being lighter, naturally forces its way to the surface of the pickle in the cup, where it is to be skimmed off with a spoon. This process succeeds best in warm weather, that makes the oil ascend copiously.

To forward this, it is customary for two men to pass betwixt the tiers with sticks in their hands, similar to handspikes,

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handspikes, having a pretty stout pin put into the side of them, at such a distance from the lower end, that, when it is at the ground, the point of the pin touches the center of the barrel-head, and both pressing at once upon each end of the cask, makes the pickle bubble as if boiling in the cup, and with its motion it carries up the oil in its course.

In the careful performance of this simple operation, after the fish has been well salted or pined, and honestly packed, consists the principal merit of the curing Aberdeen salmon, that has long since established the character they still retain, which gives them a preference of from 5s. to 10s. above all others at all the markets they appear in; and it is exactly the very same the Dutch use in curing their herrings; from us, I may say with certainty, they borrowed the practice; for it is notorious, Aberdeen salmon were as early in repute, if not earlier, than Dutch herrings; and the opportunities they had of learning this is conspicuous; for, till within these seven years by-past, they were regularly exported in Dutch bottoms, and the operation chiefly performed before their people's eyes, while waiting their cargoes,

Doing this is of more utility than is generally imagined, particularly for such as have a chance of being kept any time on hand, or sent to a warm climate, as it prevents their gilding. Burning on the maker's name, and place of abode, as well as that of the proprietor, upon each barrel, will be serviceable, as it may lead to the detection of those ill made or negligently cured.

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The simple affair of gilping or gutting is very imperfectly done by our people; they use nothing but the fingers, and it is very common to tear away part of the belly, which leaves an ugly gap betwixt the head and body, that much disfigures the fish. All other nations use a sharp pointed knife in doing this, and preserves their proper symmetry. This operation, if possible, should always be performed under a roof or awning, to defend them from the influence of the sun's rays, that softens and injures them greatly.

I am morally certain, that the erection of cisterns for the cure of fish, is a measure that, if properly executed, will be found of more real advantage to the interest of the herring fishing in general, and to that of boat fishing in particular, than any that has hitherto been spoken of or can, I almost may say, be devised.

From the long and deliberate attention I have paid to the subject, and from the many opportunities I have embraced of founding the opinions of intelligent tradesmen, I am thoroughly convinced, that fish of all kinds may be as well cured in the cisterns I have described, and preserved (if care is bestowed) for any reasonable length of time, in a state of as thorough safety as in the best vats or close casks.

A proper stock of salt should be kept in them, and put under the charge of judicious managers, that takes the gill and adhering gut clean away, without hurting the
body,

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body, to take care that no fish is received into them but such as are in good condition, that is, have not been too long taken, that they are cleanly gilped and well salted. Here the produce of many boats crews can be lodged at a very moderate expence, without endangering the waste of a barrel or barrel hoop, until purchasers appear, or offers are made from distant correspondents, who may send casks by the vessels that receive, and are to carry them to market.

Will not this place the boat-fishers upon a very independent footing in regard to sales, and enable them to obtain a more liberal and fair price than they could do by any other means? Surely it will serve them infinitely more than the late indulgent clause of allowing the bounty vessels to buy of the country boats, from which so much good is expected; for, as these vessels are obliged by law to be properly equipped for catching their own cargoes, which they can do in the course of a few nights, when the fish happen to set into the lochs, when it well may be supposed they need not buy, or, if they do, it will be at a very low price indeed; so that it can only be in scanty gleaning seasons that either party can derive any advantage from it; and as it is most likely it will prevent the attendance of vessels furnished with salt and casks to buy fish, as usual, it is a doubtful point with me, if the boats will not be more losers than gainers by it.

If, as I hope I shall soon see, or at least hear of, the bounty vessels going out to sea in quest of the shoals of
herrings

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herrings at a distance from the lochs, the boats there cannot follow to sell, consequently they will be as effectually deprived of sales to them as if it were prohibited.

One building of 100 feet long by 14 wide, gives seven separate rooms or cisterns, of 12 feet long, allowing two feet to each division or partition wall; the square contents of one of these rooms of 12 by 14, and $6\frac{1}{2}$ feet deep, supposing them filled only 6 feet, gives 1008 feet, equal to 200 barrels, consequently 1400 barrels in the whole seven; and, as many of these may be ranged along side of each other, as convenience of situation and other circumstances will admit of or require: suppose six others, and seven in all, at one station, they will contain 10,000 barrels within the square of 100 feet each way; one surrounding wall will serve to inclose the whole, with pillars of wood, brick, or stone, and run joists to support the roof.

A few planks of wood ranged over the tops of the cisterns, for gangways and bearers, will contain great quantities of casks, although the side walls were no higher than seven or eight feet; and, if carried higher, so as to form two or more flats, it will make excellent lofts, wherein immense quantities of dry fish, fishing stores, naval stores, provisions, &c. may be kept; the two outer sides might be fitted up, as being well lighted, to give accommodation to many people; the end windows, it is supposed, must be reserved for promoting a circulation of air; and giving light to the inner apartments.

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A little practice will soon determine the proper method of working these cisterns. In putting in and taking out the herrings, perhaps it will be necessary to prepare pretty broad flat frames of wicker work, to put under the feet of the labourers when at work in them, which, by dividing their weight, will prevent the fish from being injured by the pressure. These will be useful, too, to lay over the tops of the cisterns when full, so as a sufficient weight may be put upon them to press down the uppermost fish under the surface of the pickle, and thereby prevent their being spoiled by the air.

If they are substantially built of stone, cemented with lime properly prepared, they will need no repairs in an age, unless some small matter to the roofs; and, if they are laid down near a proper landing place, will be equally convenient for the small decked vessels recommended for the fishing, who stow their fish in bulk, as for boat-fishers. A few additional hands to the crews can soon discharge their cargoes, and deposit them here, where they may lie until they are thoroughly pined or impregnated with the salt, and ready for barrelling.

From 14 to 20 days will be sufficient for this, when, if they are not to be barrelled directly, perhaps it will be found proper to shift them from one cistern to another, to separate the bloody pickle from them, to be boiled, to correct and purify it before being put about them again; when, as before said, they will be found in condition fit to keep any reasonable length of time; nor

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will they need much fresh salt at packing, if this purified pickle is put about them in sufficient quantity.

It is a good many years since the practicability of drying fish in a house, heated with a stove, was fully ascertained in Scotland. I suppose there is not any kind of fish that may not be dried in such place in a very short while, and that at no great expence; and as they may be cured here with less salt than by any other means, (it is to be observed, that the less salt fish get, once they are thoroughly dry, they keep the better), and that at all seasons of the year, wet or dry, frosty or snowy weather. I would therefore presume to recommend, that they make one of these erections at least in each intended village.

Cod, ling, tusk, &c. may be dried in them in the usual kind of dry salt fish, or made into stock fish, without any salt at all. Saiths, or col fish, are dry, but wholesome food; they are valuable, when in proper season, for the oil their livers yield; the quantity, I am informed, is not less, and the quality rather superior to that of dog fish.

Small and middle-sized skate, which makes a light and wholesome food, even the large ones, if properly blooded (of this all kinds of them, yield a great quantity) immediately when taken, will, when cut up in long thin pieces, dry well here, and be found marketable.

Dried

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Dried flounders, plaice, and soles of all kinds, are in great repute at Dantzic, and other ports in the Baltic. Hollobut is a fish that abounds in amazing quantities upon many parts of our coast; they are a dry fish, and not often cured, altho' they take salt well, and may either be cured in the cisterns and barrelled, or dried with a small portion of salt, or without any in these stoves.— They and skate are fish that might be furnished at a very low rate for the West India and other markets.

Codlings, haddocks, and all other kinds of small fish, may be dried here with or without salt. I have reason to think drying of herrings in them would be an improvement upon reddening, which is done by the smoak of wood; but, I apprehend, all fat fish, such as herrings, mackerel, salmon, &c. must get salt more or less before they are dried in them and cured; they must be done with a very slow and deliberate heat, to discharge the oil as much as possible; when the best is done, they will have a greater tendency to turn moist than fish of a drier nature.

These stove-houses will require to be divided into separate rooms, and furnished with many both fixed and moveable laths of wood, similar to the Yarmouth Red Herring Houses; a little practice, with attention, will lead to the properest method of fitting them up, and show whether the stoves will answer best placed in the center of the apartments, and the flue carried perpendicularly up or round the walls, to prolong and increase

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the heat; and very short experience, under any thing of judicious observation, will soon establish a right management in tempering the fires.

When people come to be familiarized to this method, every boat's crew, though placed in the most lonely situation, if they can afford to buy a small cast metal stove, and build a hut, may dry their fish upon ropes of heath, or any other coarse matter, stretched across its width or length, as effectually as in the most expensive ones.

C. F.

LETTER VI.

S I R,

THE subject of this letter shall be devoted to fishing. I shall begin with *herring-fishing*. It is truly humiliating to reflect upon its present state, being quite the reverse of what it should be, in the hands of those, who, as a maritime, would wish or expect to be viewed in the light of either a commercial, enterprising, or an industrious people. This, with what is formerly, and probably may be said, will be thought by many as treating the subject with too much asperity. I must own, I warmly feel for the honour of my country, which I think peculiarly injured by our management of the matter, and would wish, as far as my weak abilities can, to convince my countrymen of their error, by spreading them broadly out

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out to their fullest views; for, until these are seen in their proper light, it is in vain to look for improvement; till then they will not be thought necessary, and will not be attempted.

It is not easy to be accounted for how this business has fallen from what it once was among ourselves, in times we esteem much less enlightened than the present, having the annual example of the Dutch and the people of Yarmouth too before our eyes. The best apology I can frame for it, is the singular convenience of boat-fishing in the lochs, which has no doubt led our people to follow it and boat-fishing along the coast, until the bus-rope method was forgot altogether.

If, at any period of time, the loch fishing was so regular as to deserve being depended upon, it is no great wonder it should be preferred; but when it came to be so precarious as it has been these many years bypast, the great wonder is, that no attempts have been made to try the other, when, perhaps, going the distance of a few leagues, or even miles, without the lochs, and shooting their nets there, would have accomplished a good fishing; for, it is well known, the fish will frequently be seen in very great bodies a few miles without, when none enter within them, from causes we are, and probably ever will remain ignorant of.

But indeed the great obstinacy with which the argument is supported by those engaged in the trade, that

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no other than boat-fishing is applicable to the Highlands, is truly astonishing, and shows there is no inclination to make the experiment, until it is done for them. They seem to regret their distance from Shetland, as if it could be supposed the herrings had a predilection for that station only, because the people upon the east coast formerly, and the Dutch, have long continued to find abundance of fish in that neighbourhood, and that they were there only to be found during the summer months, the best fishing weather, and when they are to be got in good condition, so as to be fit for all markets; not adverting to the accounts that have been long since given, and often repeated, of the vast consumpt of herrings that are actually made by the immense flocks of sea fowls (who, when attended to, are found the fishermen's best director) that frequent the Islands of St Kilda, Flanán, Rona, &c. in the neighbourhood of which they certainly procure their food, which is known to be herrings; and where, when properly sought for, perhaps will be found a fishery fully as productive, or superior to that of Shetland, (for it is to be observed, that the largest and best herrings, got by our fishers, are those caught in Loch Rogue, upon the west side of the Lewes), whither vessels from the Frith of Clyde, and that neighbourhood, would have but a short clear run, and plenty of sea room.

Beside what may be done in the Caledonian Ocean, among the Islands, where, notwithstanding all that has been said to the contrary, I am clearly of opinion, and will

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will continue to be so, until the contrary is proved by actual experiment, much fish may be taken in this method, by carefully attending to the course of tides, and shooting only such proportion of the nets as can be easily hawled on board within the time to be allowed for driving, when the tide happens to be setting into narrow channels, or upon the land.

Shooting and hawling nets by the bus-ropes must surely be a simple process, and might be easily acquired by those accustomed to working nets by boats, would our people who have vessels only take courage to try it; their ordinary cables and hawsers, with very little addition, would answer for bus-ropes to shoot all the nets they usually carry. I would here describe the method, as I have had it repeatedly done to me by practical fishers; but as Mr Knox has done it in his account of the Yarmouth fishing, it would be needless to repeat it here; but experienced fishers must be had to put them fairly into the method, before it can be much attempted with any probability of success.

The vessels presently in use, with some little alteration, may be suitable for this method of fishing; those who mean to pack their fish in barrels on board, will be obliged to give them a good many staunchions, let down betwixt the timbers, raised the usual height of quarter rails the whole length, and lined in the outside with boards; this will give them the advantage of deep waists, without lowering their decks and lessening their burden;

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to these staunchions, when fitted with ringbolts, the barrels may be lashed, standing on end, for the purpose of packing; without this precaution they could not be brought upon deck with any degree of safety, for fear of rolling and tumbling overboard.

The vessels described in the second and third of these letters, as formerly said, will be found singularly convenient for this trade, being calculated to serve as a medium betwixt boats and large expensive vessels; from them every advantage that might be expected from either may be depended upon, at little expence. They will comfortably lodge the necessary number of men, stow a considerable quantity of fish, and may be wrought either within the lochs, or in the open ocean, as prospects offer best. The method of curing fish in bulk will relieve the crews of much labour that may be advantageously employed in other branches; and the facility with which they may deliver their cargoes into the recommended cisterns to be finally cured, packed and exported in larger vessels, will leave them so much at freedom to prosecute the business without interruption, that a few hours may serve to discharge the produce of their labours, take on board provisions and water, a fresh stock of salt, and shift their nets, when they may run to sea again directly, and thus almost unceasingly pursue their operations in a deliberate systematic manner, whereby they will be enabled to repeat their trips or voyages very frequently; and the result will be found highly beneficial to all concerned in it, as well as the public at large.

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When the proper method of fishing is established round all our coasts, (for it is equally applicable to the east as well as the west, and it is certain that herrings abound upon it as plenty as any where else, and that several of its towns would make as fine fishing stations as any round the island), and were there cisterns built of sizes proportioned to the number of vessels or boats employed at each station or village, the quantity that might be taken may be great indeed. Then would our fisheries wear quite another aspect than they do at present; there would no complaint be heard of having only half cargoes in the course of the season; instead of which they may, and certainly will make several whole ones, beside the very great advantage that may be derived from carrying on cod-fishing at the same time; for, notwithstanding the prohibition against catching and curing cod, during the herring season, is very sensibly done away, little advantage is to be expected from it while the fishery is confined to the lochs; but when they go out to and keep the sea, the case will be quite altered; if they are industrious, the quantity taken may be such as to insure a profit, were the herrings failing altogether, which is not to be supposed possible; for, although the Dutch may have better and worse seasons, we never hear of their failing them, nor will they us when we follow a proper plan. They always, as soon as their nets are hauled in the morning, and their herrings gutted and salted, immediately set to work with their hand lines to fish for cod. By practising this method, the last vessel that was employed from Aberdeen, properly fitted out for herring fishing,

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fishing, about fifty years ago, caught six lasts of fine cod, ling, and tusk, in the course of the season, as can be certified by the cooper who was on board her, and is yet in life.

When the bus-ropes method of fishing is introduced, and the nets are made stronger than they are used at present, and when the fish happen to set into the lochs in such bodies as represented, and the depth of the water is not too much, they may be used as a sein; or if they are not hauled on shore, they may at least be used in such a manner as to surround and retain great numbers of them, until they are gradually taken out by small bag-nets with handles, in the way the Swedish fishery is conducted.

It is several years since a net was contrived, that may, it is presumed, be used with great success in such vast shoals of herrings as are frequently fallen in with in the German ocean, and upon the north and west coasts, although as yet no proper opportunity has occurred of trying it. It is composed of a frame, consisting of four pieces of wood of any given length, suppose 9 feet 6 inches broad, by $1\frac{1}{2}$ or 2 inches thick, or round altogether, made of tough straight wood, to be tied together at the corners with pieces of ropes, or fitted with iron hinges: In the last case, two of the hinge-pins at opposite corners must be made to draw out, on purpose to let the frame flap together, for the convenience of stowing in little room when not in use. One of the sides

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of the frame is to be loaded with a sufficient quantity of weighty matter, either lead, iron or stone, to sink it quickly. To this frame a bag-net made of pretty strong twine is to be strongly lashed, to what is designed as the under edge of it: It should not be of a large mesh, of a proportional size, suppose 9 feet deep, and sufficiently wide, to hang fair, without overstretching the meshes.

The slings for working it by are to be made of two pieces of ropes seised double, leaving an open eye in the middle, the four ends to be passed to, and fixed to, or round the four corners. Care must be taken to sling it equally, so as, when suspended by the largest or main hauling rope, to be tied to the center of the slings, it may hang fair.

To the other side of the frame, opposite to that loaded weight, another sling, made of one piece of rope, is to be tied near the two ends of the side of the frame, with an eye formed in the center of it also, for fixing a small rope for dipping or letting down the net: It will likewise be necessary that the net be loaded with some little weight, in the same side that the weight is put upon the frame.

When thus fitted, a small boom or long piece of wood must be prepared, one end of which must be tied to the mast, or any part of the vessel that will resist a pressure; the length required such, that the outer end must at least project more than half the diameter of the net over the vessel's

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vessel's side : If this outer end be supported by a tackle or any rope passing through a block at or near the mast head, that it can be hoisted up or let down a little, so much the better. To this end of the boom there is to be secured a double block of two sheaves, through which the two ropes for letting down and hoisting up the net is to pass; also two braces or flays, the one leading forward, the other aft, for steadying it. On putting the net overboard, by keeping tight the small rope, it will go down into the sea the weightiest side foremost, occupying no more surface of the water than just the length and breadth of one side of the frame; and when at the depth thought necessary, by letting go the small rope, and hauling up the larger one, the net falls horizontally, and, in coming up, will bring with it whatever comes in its way; consequently, where herrings are in such bodies as they are said to swim in, great quantities of them at once; and the dips, when unsuccessful, may be repeated very quickly. Upon a successful haul, it is to be suspended alongside, the edge of the net just above the surface of the water, where the fish are retained alive until they are taken out by small handled bag-nets.

The square contents of this net is above 140 barrels; but making allowance for its not hanging fair, although upon a resistant pressure, it will expand itself much farther: Were it yielding a fourth, fifth, or tenth part of this quantity, for a few minutes labour, it will be allowed to surpass any thing yet in use; and the expence is but a trifle in proportion to its apparent utility.

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It is supposed a larger one than the above may be used; but a little practice will best determine whether larger or lesser ones will be most convenient, or what number can be wrought at once. Boats may use them of a small size in smooth water, and decked vessels in any weather that is not very tempestuous. In any thing of a rough sea, it will be necessary that the boom have sufficient length to force the net to some distance from the vessel's side, for fear of injuring it.

It is only where the body of herrings is very thick, and in the night time, it can be used with any prospect of success; and it will be found easiest wrought about the turn of tide, or where there is little current or tide-way. For small ones, good stout hoghead hoops may serve for frames, fixing bag-nets to them, and slinging it in three parts; for the less interruption there is in the mouth, so much the better.

I apprehend it may be singularly serviceable in catching dogs. They are a voracious fearless fish. By suspending bait of any kind, even pieces of themselves within it, I suppose great quantities of them might be taken. Perhaps it might be found useful in other fisheries also: By placing a light above it, fish of various kinds may be amused until surprised by it; for it is well known, that fish in general, salmon in particular, run upon light. However, I will not presume to say farther in its favour, but leave to future practice to ascertain and establish its importance and utility.

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By these various methods of fishing, as well as others that may be devised, it may happen that the quantity of herrings taken in some seasons may far surpass the possibility of finding markets for them, even at the lowest price they could be sold for, to defray the necessary charge of sending them to any distance; in which event, the surplus may be boiled, as the Swedes do, for extracting the oil: The roes of these may be taken out for the purpose of making caviar. For doing this, proper directions should be procured: If oil is necessary for the purpose, perhaps their own oil may be found as fit as any other. From an experiment lately made, I find it will not be possible to prevent its turning thick in cold weather, for I observed it to condense into a gummy substance when floating upon the surface of clean pickle; notwithstanding which, it may be found serviceable for many purposes; for olive oil, that is so essential to our woolen manufactures, and the price of which runs so high as from L. 40 to L. 50 per ton, also thickens with cold.

When these herrings are boiled to a proper consistence, the oil skimmed off, and the grosser parts separated by passing the liquor through a woolen bag, these grosser parts will make excellent food for hogs, ducks, geese, or other poultry, and the liquor may be boiled down to a proper thickness to make isinglass. This, as it will contain the whole essence of the herrings, if cleanly gone about, may be useful for many purposes. In the same vessels that serve to boil the herrings may the heads and intestines

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intestines of cod, ling, &c. be also boiled for making isinglass, and thereby turn every part of the fisheries to account in some or shape other. In the stoves mentioned for drying fish with heated air, this isinglass may be thoroughly dried in a short time, perfectly clean and pure.

These stoves and boilers will be singularly useful for barking and drying herring nets. It has been formerly said, how necessary it is to have this done frequently, without which it would be impossible to keep them in any tolerable condition. At all places I have heard of, the drying and frequent airings are performed in the open air: The inconvenience and risk from rain, in doing this, must appear conspicuous; the convenience and facility with which it can be done in these, in any weather, at all seasons, is obvious.

C. F.

LETTER VII.

Of Cod-Fishing.

S I R,

I AM sorry to say, that our cod fishery is in no better situation than our herring fishery. However, as a spirit of adventure in the Iceland fishery has commenced, the general success that has attended those who have tried it, will certainly increase the number, and be the means

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means of helping us forward in improving this branch of the fishing business. But although it has frequently been told the great advantage the Dutch derive from fishing for cod as well as herrings on our coast, many of whose vessels arrive early in the spring, when they catch vast quantities of the prime of our fish, there seems as yet no disposition for imitating them; so that all around the Scottish shores, nothing is practised or to be seen at this day, but boat-fishing, which is very precarious, and by which there is not much chance for the best fish, as they cannot venture out the proper distance, or keep the sea.

Our people upon the east coast are in general allowed to be very good fishers; they are certainly very industrious upon many parts of it in the way they have been accustomed to work, although they are rather far behind what they ought to be, to give them a full title to that character; as they cannot continue long at sea in the small boats they generally use, they fish with the long line, that they may more effectually avail themselves of the short time they are out.

From the application of reason, and attention to the subject, it occurred to me, that by the long line method of fishing, the hooks and bait must lie at the bottom, where many of them must get into hollows, upon rocky ground, or among weeds, where the fish have no opportunity of getting a fair bite, consequently the chance of success is greatly reduced; therefore I supposed, that,

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were these lines fitted with small buoys of cork upon each snood, a little distant from the hook, just sufficient to float the hook and bait, but not to raise the line from the bottom, being thus suspended in the water, the natural agitation of it, either from the effect of the wind or tide, would keep the hook vibrating in continual motion, similar to that of the hand, as practised by the most industrious hand-line fishers, and be a great improvement upon long line fishing; but I did not at first conceive the full importance of it.

I had often heard our fishermen acknowledge, that, when fishing upon the Marr Bank, about fifteen leagues from the land, where those who have pretty large boats venture out a few weeks in the heat of summer, and where they fall in with many Dutch vessels, the crews of which will be hauling on board vast quantities of fine cod and ling; while they, upon the very same ground, with a long line fitted with several hundred hooks, will not perhaps catch five or six of these among the whole, hardly any thing but skate and hollobut, fish that are no doubt of value to them, as they are brought on shore directly, where they always find a good and ready market: the skate are particularly valuable at that season, on account of the oil their livers yield, being worth from 6d. to 1s. each, or even more; but these fish the Dutch can and do carefully avoid.

I naturally asked them if they knew the reason of the superior success of the Dutch. They readily owned,

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that they are more expert fishers, but wished chiefly to attribute it to the better bait they use, being eels, herrings, and mackarel in their season; and I partly credited their report, until some time ago, that I accidentally fell in with a Fleming from Ostend, a most intelligent fisher indeed. Upon hearing him repeat the many successful fishings he had had upon our coast, and speak in raptures of what he could do, if settled here, and furnished with a vessel to his mind, I asked him, which way he accounted for it, that our fishers were so much less successful in getting the proper merchantable fish than his countrymen and the Dutch? His answer was, that, as our people use the long line, the whole hooks of which lying upon the ground, where skate, hollobut, and all the other tribe of flat fish feed, it is next to an impossibility, use what bait they will, that they should have any thing else upon them: That the Dutch and they fish with the hand line; in doing which, they just feel the bottom with the leaden sinker, and immediately draw back the length of from three to six feet, where, if there are cod or ling, they are sure to find them, and generally avoid the flat fish, although they will at times fall in with some of them: These, when at a distance from home, and do not chuse to be encumbered with them, are, upon coming up, cut off the hook, and set adrift, except what they chuse to reserve for ship's use: When the skate livers are full, they sometimes take them out for making oil.

I asked him, if the Dutch, and they too, do not frequently use this long line? He said, they did, but never where they had a dependence upon getting proper cod and ling, only for small fish, and chiefly for little skate, flounders, &c. These answers fully explained what had appeared something mysterious to me, and answered my queries, in a perfectly simple and rational manner, and made the idea of the small buoy, or piece of cork, upon the snood of each hook, recur upon my mind with redoubled force; as I had been at pains before this, I was at more afterwards, to recommend it to every fisher with whom I conversed (and I have with a good many) to try it; all of them readily owned that they were convinced it would have the desired effect, and, in seeming compliance to my urgent request of making the experiment, have promised; but I cannot hear of one of them that has done it, for which no other reason can be assigned, but an infatuated adherence to old practices, for which they are singularly remarkable in general.

I thought they would have deviated in this instance, on account of its very great apparent prospect of so materially promoting their interest, particularly as they all allow it bids fair to relieve them from the star-fish (what they call the cross-feet), who form one of the greatest grievances they labour under along the whole coast, devouring their bait in such an extraordinary manner, that, upon many parts of the best fishing ground (*no new bank, but as old occupied as any in Europe*), it is rare if one hook and bait in three escapes them, the whole snoods of their

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their lines being covered with them very frequently, and their fishing prodigiously injured.

They have felt the hardship of this so forcibly along the coast of Cairnbulg, Rattray-head, &c. that they entered into a resolution, some years ago, to bring on shore all that were got upon their lines, to try to destroy them; they continued to do this until they collected great heaps of them at each fishing village; but, after considerable perseverance, they found them no thinner, and were obliged to desist, and patiently submit to an inconvenience they found they could not surmount.

If ever the small buoys upon each snood of the long line come fairly into use, I am morally certain, it will benefit the fisheries in a singular manner; for where much is done at present without them, much more will then be done with them. If I state the increased success at fourfold, upon the hooks and lines presently in use, I have reason to think I am far within bounds, unless it be in cases where their labours are meant to be directed to a flat fish fishery.

Yet, however much may be expected to be done by an improved boat fishery, when brought to the utmost perfection, precarious and uncertain it must always be, in proportion to that carried on in any kind of decked vessel, wherein men could pursue their labours in safety, and refresh themselves with a regular meal of comfortable warm provisions after their fatigue.

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The great waste of time and labour, in going to and coming from the fishing ground, lays them under much hardships; besides, it frequently happens, that, in the very best part of the fishing season, the weather will be such, that an open boat dare not venture out any distance to sea; or, when out, or in the midst of their most successful operations, they must leave off, and make for the shore at the hazard of their lives, which not seldom fall a sacrifice in weather that would not interrupt a decked vessel.

Those who have hitherto adventured in the Highland white fisheries, have only followed the old track of boat fishing, their vessel lying moored in some loch or other, the same way as in the herring trade, while their boats go to sea, in which they are often interrupted for several days together, although in the summer time.— I am clearly of opinion, that, were they to keep the sea with their vessels, and employ the usual number of hands they carry out, in working hand lines, they would be far more successful, at much less fatigue, unless their lines were mounted with the recommended buoys, and, even then, I see no cause why both methods may not be used at once.

I well know, that, in fishing with the long line out, without the sight of land, they must keep constantly near them, while they are out, for fear of losing them; but where the fishery is carried on within sight, and at a short distance from land, (as the case is said to be upon

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on much fine fishing ground within the Hebrides, where they can easily take such marks as will enable them readily to find their lines again,) they may shoot them, and allow the vessel to drive either south or north, as wind and tide sets, returning once in twenty-four hours, to under-run them, taking off the fish, baiting their hooks, and laying them down again. It cannot be doubted but this method would much promote their success, as it gives them a double chance.

There has been nothing done of any consequence upon the east coast in the cod fishing way these many years by past, but by our fishers themselves, whose abilities and substance are far too limited to enable them to do much. This is the more to be regretted, when the very great advantage the Dutch are known to reap from their labours upon it is considered. It is certain, they not only know the value, but the situation also of our fishing ground infinitely better than we do ourselves, and avail themselves of this knowledge far more than I find is generally imagined.

I know not what has induced Mr Fall, or those with whom he coincides, to say, " I agree entirely in opinion with those who think that the fishery in the North Sea, between the coasts of Scotland and Holland, cannot be considered as furnishing fish in sufficient quantity for foreign markets, or of presenting an object of sufficient magnitude to engage public attention."

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Certain it is, that this ground yields a very great quantity of fish to the Dutch; and why should it not do so to us, who can, and certainly will, when we fall into a right method of conducting our operations, carry on the fishing in this sea, at much less expence than they, and consequently may under-sell them?

Mr Fall will not surely refuse, because the world knows, that it was the fishery in this very sea that first raised and long supported these people as a commercial nation; and although their trade in that line is now far from what it has been, it still is a very important one to them, and to which they pay every attention, prosecuting it with persevering industry, all along the coast of Scotland, and across the north sea, betwixt it and the continent of Europe, as our fishermen and seamen, who have frequent opportunities of seeing them upon the coast, as well as in their passage to and from the Baltic, &c. will declare.

If the truth of this shall be doubted by any, the writer hereof pledges himself to produce several boats and vessels crews, who can declare, that, in April 1786, they fell in with fourteen sail of Dutch vessels, all fishing in view at once, some of them not six miles from the shore (such sights are quite familiar and common to them); and, much about the same time, the sloop Bon Accord, Captain Blyth, in her voyage from Gottenburgh to Eyemouth, sailed thro' a fleet of near twenty sail of them, about eighteen leagues to the north east

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of St Abbe's Head (no great distance this from Dunbar); and can it be believed, that it is not a profitable business to them when they follow it so assiduously?

Is it not a pity that Mr Fall was not better informed before he gave such a decided opinion, as so much deference is paid to it? However, I cannot better confute such arguments, nor more forcibly convey an idea of the advantage that might be derived from following the example of the Dutch, than plainly narrating what lately offered itself to the full view of the inhabitants of a considerable manufacturing and mercantile town upon the coast; and making a comparative calculation of what we ourselves might do upon this same despised east coast sea.

Upon the 21st of April 1786, the tide surveyor of that port, seeing a Dutch vessel in the Bay, boarded her, and found her to be, I think, the Catharina of Rotterdam, Airy Dochire master, a well dogger of sixty tons burden, whose crew consisted of eight men and one boy, had been eight days from home, six of which had been spent in the passage, and two days only in fishing, most of which two they were put off the best fishing ground, being set in shore by north-easterly winds; yet, in that short time, had taken eight barrels of fine cod and ling (about a ton), beside turbot in her well, of which it is certain she would have some, although no enquiry was made. She had herrings caught in nets, shot in the night-time,

night-time, for bait; she was a stout built vessel, and probably fitted out at L. 600 or L. 700 Sterling.

I will suppose this sum laid out in such small vessels as I have formerly described, which I apprehend may be used upon the east coast, as well as in the Highlands, with this difference only, of being a small matter stouter timbered, on account of frequently taking the ground in dry harbours. It will build, rig, and fully equip with hand lines, and a few nets to catch bait, four of these small vessels. They can conveniently accommodate nine hands, consequently give employ to thirty-six men and boys, whose wages are over-rated at a shilling per day over-head. However, not to scrimp the calculation, I will state L. 11 Sterling for six days, allowing sixpence per day for provisions, exclusive of fish, is L. 5: 10, and both L. 16: 10.

Now, if they fish equally well with this Dutchman, who had eight barrels in two days, (a gentleman from Shetland says, their success in that neighbourhood far exceeds this, frequently amounting to six, seven, or eight barrels a-day), and who will doubt, but they may be soon brought to do so, the produce of six days will be twenty-four barrels to each, and ninety-six barrels among the four. Valuing these at the moderate rate of 30s. per barrel, it makes L. 144 Sterling, yielding a handsome profit indeed, were they in general falling far short of this quantity, or the price greatly reduced, and sufficient to allow full scope for premiums, or a proportion of the

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value of the captures to the fishermen, to stimulate their industry.

This is independent of flat fish, such as turbot, hollibut, skate, &c. of which the quantity would be considerable, and of which they could relieve themselves frequently, by running in shore, and throwing out signals, if it were meant to save loss of time by coming into port. Boats might be ordered out to receive them for immediate use, as far as they will sell, or to be cured in the manner hinted. The cod too could be frequently landed, to be dried and rendered suitable to many markets, and the livers of all these fish would make a considerable additional object.

The above is a fair state of facts, and a plain simple calculation. Does it not hold out a flattering prospect to those who will take up and follow this branch upon proper principles? Where have we the trade that will yield returns any thing nearly similar to this, at such small advance of capital? And if reports are not greatly exaggerated, the prospect upon many parts of the west coast are still more flattering.

I will beg leave to ask my countrymen, if they think there can possibly be exhibited a more culpable instance of fatal indifference in a people neglecting to avail themselves of advantages just at hand, and that might so easily be obtained. Much has been said, of late, in praise of the

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the Iceland fishery, and recent instances of success shows it is deserving; but a distant fishery must always be carried on in larger vessels, at more expence, and to greater disadvantage in every respect, than is needed for a home one.

C. F.

LETTER VIII.

S I R,

IT is to be observed, that, along the north-east coast of Scotland, beside the main bank at about fifteen leagues distance, where the depth runs from 30 to 40 fathoms, there are others within it having more water upon them; and between these are deep hollows, intersected with sharp pointed reefs of rock, that frequently cut the fishermen's lines; part of these hollows are by our fishermen vulgarly called the *skate holes*. They form as great, or perhaps the greatest, repository of flat fish hitherto known in the world, and where boats of five and six tons burden will frequently be loaded in the course of a few hours.

Here, as well as all along the coast, the Dutch, and our own fishers also, catch a great many turbot; perhaps, upon inquiry, it will be found, great part of those, with which they supply their own and London markets, are taken upon our coast, by collecting of which from their fishing vessels when they come into port, and putting

ting them from time to time all on board of one, they feed the markets gradually. This practice enables them to draw such a price for them as greatly promotes their interest in the fishery, and contributes to support the circuitous navigation necessary in sending them to supply the capital of Britain with this delicious fish caught upon the Scottish shores; while our own metropolis, notwithstanding her rapid advances in all the conveniencies and elegancies of life, can rarely taste of these, although undoubtedly her own, being quite dependent upon the precarious supply of fish of any kind that small open boats can yield, not having one single decked vessel, either with or without a well to fish for her.

It is presumed, that the Dutch being enabled to furnish such quantities of turbot as they do, is partly owing to the number of fishing vessels they employ, from which, as above said, I suppose they are collected; and, by knowing so well as they do from long experience, the proper ground for flat as well as round fish, they are and will be more successful, until we acquire equal knowledge, and employ an equal number of vessels and men.

It is more than probable there may be something peculiar in their manner of fishing for turbot; of this, I could learn nothing certain from the fishermen, who informed me of their seeing them haul these fish on board; for they had not ingenuity to make acute observations,

servations, even in the line of their own profession; however, I will venture at a conjecture.

As turbot are a ground fish, and have but a small mouth in proportion to that of the cod, who are taken with a larger hook than the other can be supposed to receive, I therefore apprehend, the Dutch must mount their hand-lines with both large and small hooks, perhaps two of each; the small placed lowermost, so as they may travel upon or hang very near the ground, while the larger cod hooks are at a proper distance above.— This will give a double chance at a very little additional trouble or expence. I know not if this is their method; but I think there is some reason to hope that it might be practised with success. The only inconvenience I can see to attend the execution of it, is a risk of the hook catching upon the ground as the vessel drives over it; but as the hook is small, and the snood required for it weak, either of them most soon give way to relieve the line, the capture of one turbot will amply compensate the loss of many of these small hooks or snoods.

In case it should happen that our fisheries come to be prosecuted with any degree of spirit, I will venture to suggest a method whereby, I think, turbot may be preserved alive, and sent to a distant market. I well know this will be best done in vessels having wells; but, as these are not fit for the herring fishery, they are not to be recommended for general use by us; however, another substitute may at least be attempted, as the experiment

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ment may be made at very little expence. When our fishers learn to furnish themselves with apparatus to procure proper bait, such as herrings, which may be had at all seasons, mackrel, &c. they may in time come to be purchasers of the Thames lampreys, said to be the best bait the Dutch have yet discovered, and which they carefully husband, by cutting them up in small pieces, placing one of them upon the point of the hook, when the rest of it is filled with other bait; this, it appears, makes an excellent lure, and, no doubt, is the means of increasing the capture of cod and ling, as well as turbot in particular.

Having heard the complaint of fishermen who have frequented the Highland white fishery, where they have suffered much for want of bait, and, knowing the hardships that many upon the east coast labour under for want of this necessary article, I have thought, that, were a frame of split ash, or any such elastic wood, made quite light and slender, in the shape of a small boat, covered round either with a small meshed net, or coarse open hemp cloth, it would retain fish of any kind; and, by admitting a free circulation of water, would preserve them alive. These might be towed along-side by means of a projecting boom or stern, as may be found most convenient for the working of the vessel; they may be constructed large or small, so as they may be taken down or put together in the course of a few minutes, and will be so light, that a single man may take them on board,
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when the severity of the weather or other circumstances may require it.

Were fishing vessels furnishing themselves with these, beside the advantage of keeping bait alive, by being put into them immediately off hooks, or out of nets, perhaps turbot, as well as salmon, eels, and other fish, may also be preserved alive in them, at least for some days, until, having a few of them, it were found necessary to run for some part of the coast, where proper conveniencies were erected, for keeping them until put on board a vessel having a well, unless opportunities of doing so at sea shall happen, which may be frequent upon the east coast during the spring and summer, when well smacks are actually passing and repassing to and from London, with fresh and kitted salmon, almost weekly; the owners of which, being London fishmongers, would certainly be ready to contract for them in any quantity that could be furnished, and give reasonable prices for them, proportioned to their sizes, and would perhaps order their smacks to cruize a few days occasionally, to receive them into their wells as soon after being taken as possible.

In the event of having any considerable number of turbot in these machines or diving boats, when it were coming to blow, rather than lose them by being taken on board, when they would die, perhaps, upon trial, it may be found, that, by adding a certain proportion of weight to them, they may be sunk 10, 15, or 20 fathoms under the surface, and prevent the fish from being

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ing injured by the agitation of the waves, which will be much less felt below than above; to prevent their going farther down than intended, they may be suspended by a pretty large buoy, flung by the stem or stern of them.

Were this method found to succeed, and that it may do so in part I can hardly doubt, the advantage that will result to the fishery by preserving, and to the public by being furnished at home with this most valuable of all small fish, besides other species, will be great. It is equally applicable to the Highland fishery as to that of the east coast; although situated farther from London, yet those got on the north and north-west end of the island may be sent there, or, with those got farther south, sent to Glasgow, Liverpool, Bristol, and so to Bath, &c.

When we shall attend to our true interest, and prosecute our fisheries in such vessels as I have described, or any other that experience shall find fittest for the purpose, our captures will increase to an astonishing amount, and the quality will be found exceedingly improved; for it is the weakest of all kinds of fish got either in shallow water or near the land, the strongest and best at a little distance; it will also enable us to avail ourselves of sundry other branches of it, to assist and support the business.

For instance, the sun-fish, or basking shark, is very valuable on account of the great quantity of oil their
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livers yield. Few of them are taken at present, in proportion to what might be, by vessels constantly driving about at sea, were they furnished with proper harpoons and lines, with a few light lances or spears. As they frequently lie upon the surface of the water, they are to be seen at a distance, when the vessel may either sail or row up to them; and as they are so stupid or fearless, although quite inoffensive, they are not easily alarmed, but allow themselves to be struck in any part the harpooneer chuses. By the present practice, it would appear, it frequently takes many hours to kill them; but were a few of the crew furnished with spears, and all inflicting wounds at the time the harpoon was struck, it would make a short process and soon dispatch them.

It is well known, that whales of various species, and some of them large ones, frequent both the east, west, and north coasts of Scotland, during the summer and autumn months; it is true, they are much more active and restless, consequently give less chance and fewer opportunities of striking them, than it appears they do in the earlier part of the season, and farther to the northward; but I would fondly hope, ways and means may be fallen upon to get some of them. If the poor Indians at and to the north of Kamschatka, in their small canoes, and with their simple apparatus, can overcome whales, it would surely be an insult upon us to think, that, with our so far superior conveniencies, we could not accomplish the same.

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I think I have a good many years ago seen it recommended in a Magazine, to throw a harpoon, with the line fixed to it, from a swivel gun, and I should think it might be practicable to do it either by that or a blunderbuss. I am well aware, that, by carrying the line along with it, its force must not only be checked, but its true direction greatly diverted; however, by practice, perhaps experience might be attained to throw or shoot them pretty truly. When they miss, the line will bring the harpoon on board again, so that it cannot be lost; when it takes place, and holds, it will no doubt be necessary to tie an empty cask, well bunged up, to the end of the line, and throw it over-board, as the fish will run with such velocity (her course perhaps against the wind too), that it would be impossible to keep pace with her in the vessel.

The empty cask will serve as a buoy to show what course she takes, and where she is. If the vessel can possibly get up by the time she need to blow, and if they have a few blunderbusses on board, and a parcel of lances, whose shafts are made of light wood, or hollow reeds, by firing a volley of them into her, it would wound her so mortally, that she would soon die with loss of blood; any of the lances that were missing will come to the surface again, the weight of the iron preponderating, and make the lighter end stand perpendicular in the water, and lead to its recovery.

Porpoises are a fish that may be turned to account, from the quantity of speck or blubber they yield. It is probable

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probable they also may be killed in the foregoing manner; but they are quick in their motions, and I am afraid it will require a very ready and steady hand to shoot them: However, there is another method has occurred to me—I have been informed they will follow a new boat, or even a boat whose bottom has been lately paid, for a considerable time, as they generally go in shoals, or a few of them together; were a net made of small line, of an eighteen or twenty-four inch mesh, of from five to ten fathoms depth, as experience shall find necessary, and any given or proper length, the upper edge of it floated on the surface with cork, when set—if it is found they will really follow a new tarred boat, I suppose they may be easily led to where the net is set, where they will entangle themselves into it, until they are killed, by repeated strokes of a spear, and towed on shore.

Campbell, in his Political Survey of Britain (wherein he has given as good an account of the Hebrides and west coast of Scotland, with the advantages that may be derived from the fisheries there, as any I have yet seen), says, the Canadians have a peculiar method of dressing the skins of porpoises, that renders them, although quite thin and elastic, capable to resist a pistol bullet. As these people are now the subjects of Britain, would it not be worth while to enquire if they are possessed of such an art? and to try to procure the necessary instructions for practising it here?

C. F.

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LETTER IX.

S I R,

I SHALL now beg leave to recommend some particular modes of Fishing, by which some branches of the Fishery might be much improved.

Fishing for skate, with hanging nets, is a method that might be practised with much success, upon many parts of our coast where these fish abound, but where the method is not so much as known to be practicable, although a great deal is done in this way, at the sundry fishing towns in the entrance of the frith of Forth and other parts of the island.

They are made of pretty stout twine, much of the same size as that used for salmon nets; they are wrought 100 fathoms long, by 9 or 10 meshes broad, of from 12 to 14 inches wide, taken in to about 50 fathoms long on the rope by $4\frac{1}{2}$ or 5 feet deep on the side rope. They are mounted with small back ropes, both at the upper and under edges, of the thickness of middling sized fishing lines; upon the upper edge is strung a sufficient number of small pieces of cork, $1\frac{1}{2}$ inches square by 1 inch thick, placed about a foot from each other, to float it from the ground, while the other side is loaded with stones, slung in nooses at three fathoms distance, to keep it down to the ground; mounted in this manner, they are set across the tide, as many of them tied together as
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the boat's crew can conveniently muster, sometimes, I am told, to the extent of two or three hundred fathoms in one fleet, having sundry buoys placed at proper distances, made either of cork, wood, or skins.

Although skate is a very unlikely fish to be taken by a hanging net, it is a certain fact that vast quantities are thus taken; for when they are scouring along the ground in quest of food, and find themselves opposed by the net, they endeavour to force forward, in doing which, they throw up their tails; these entangling in the meshes, while their snouts are engaged, retains them secure until the net is hauled up; they are left set in the sea, and drawn as often as experience finds proper, or the weather will permit.

I procured one of these nets, properly mounted, offered to show it, and even give the use of it to sundry fishers upon the north-east coast, in hopes it might induce them to put such in practice; but no—they admire and admit the utility of this, and other improvements that have been pointed out to them, but it is no easy matter to prevail upon them to give into any thing they have not been accustomed to. This will always be the work of time, and not until actual experiment has made even the simplest thing appear obviously advantageous.

Much has been said for these several years bypast, and something has been done, to endeavour to convince our fishers of the great benefit they might derive from furnishing
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ishing themselves with herring nets, to enable them to avail themselves of the shoals of these fish, that every year they have occasion to see upon the coast, but hitherto without effect, until very lately, that one man, a little more disposed to adventure than his neighbours, procured a few yards of net, which he uses in the manner of what is called the ground drave, by setting it at night, in the entrance of a small cove harbour betwixt rocks, and hauling it in the morning, whereby he has sometimes got six, seven or eight hundred fine herrings in a night. The value of one night's fishing, at the price he can draw for them, amply compensates the price of his net. It is surprising to think what spirit this little affair produced among his neighbours, and the avidity with which they have been enquiring for nets to buy, which gives a ray of hope they will open their eyes to their interest, and in time bring nets into use upon a part of our coast, where they may be used with great success, although they have been long neglected.

A great deal might be done with lobster nets, at many places upon our coast, were they properly introduced, where these fish are plenty, if there were demand for them. Vast quantities of their spawn are annually destroyed by poor people, who gather, boil, and sell many bushels of wilks, both in town and country, as publicly and in the same manner as gooseberries, notwithstanding there is an express Act of Parliament to the contrary; but it is gone quite into disuse, at least on our coast; so that they are not so much as forbid to do it, nor do many who buy them

them know that they are the embryo of a lobster, although they are frequently seen, almost completely formed in these cells, at a particular time of the season.

There are deeps upon some parts of our north coast, particularly off Gardenstown, where eels abound so plentifully, that they preclude the fishermen from the possibility of availing themselves of any other fishery upon them; for any lines that are shot, they have the bait devoured by them almost instantaneously; on that account they are abandoned, as these are a fish they hold in detestation; they are not accustomed to use them as bait, although they would certainly answer well; and they would by no means eat them, though they are highly esteemed and relished in many places. They are said to sell for 8d. per lb. in London. If the report of the fishers who gave me this information are to be credited, and they had no temptation to tell a falsehood, many thousands might be taken here, either by baskets, such as are used in the river Thames and in Holland, for this purpose, or by nets constructed upon the same principles.

I apprehend a trawl-net fishery is far from being applicable to the Scottish shores, which are rather too rugged, and much too fine fishing ground in general, at least upon the east coast, unless in some particular small places, consisting of sandy bays. This is a fishing most suitable for soft sandy ground, and is at same time best adapted for the local accommodation of a fresh fish market, as turbot,

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bot, flounders, soles, plaice, and small skate, are the general capture; however, as the apparatus is no great expence, our fishing vessels may be furnished with them, that they may use them, when they know themselves upon proper ground, and are coming into port; for these fish will dry, and meet with a market in the east country.

Many are the modes of fishing that may be collected from the practice of our own and other countries, or may be invented by the application of a little genius for the introduction of improvement, with attention to the subject; and much does it behove the public to compassionate the prejudiced opinions of these people, and help them forward, by setting them a few good examples, upon plain, familiar, simple principles. To endeavour to encrease the quantity for country consumption is an object, even where it cannot be supposed much to extend the export trade; where it tends to both, the object is still greater.

A want of contrivance in our fishers to procure proper bait, and keep it in good condition, lays them under great inconvenience. To illustrate which, I beg leave to observe, that there are thirteen large and small fishing boats belonging to the harbour of Aberdeen, manned with six men and lads each, who, independent of the great inconvenience they labour under in general, on account of this want and fatigue sustained in procuring it, by digging out of the sand sand-eels and logworms, which

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which occupies a very considerable part not only of the fishers, but their whole families time, almost daily; they never, or rarely, can get to sea on Monday mornings for want of bait, unless when they happen to have mussels or earth-worms. Now they value their fishing, upon an average, at 3s. per man daily, when they do get to sea, and as much for the boat, which makes a guinea for the boat and crew, and L. 13 : 13 : for all the thirteen: Suppose the weather favourable for going to sea 40 out of 52 Mondays in the year, and if of this 40 they are incapacitated from going to sea 25 (and I have reason to think they are more than that), brings the loss sustained by these poor people, for want of this necessary article, bait, at this one place, to L. 341 : 5 : Sterling yearly. To include the whole coast, and calculate the general loss the fishers sustain (and in them the country around it), would amount to a much larger sum than can possibly be imagined by inconsiderate observers.

I have seen a net used in the West Indies for catching fish of the anchovy size, that it may be supposed might be usefully employed for this purpose; for it is well known our seas swarm with small herrings, sprats, shads, and sand-eels, almost the whole year, and all of them make good bait. It is made of very fine small twine, in a circular form, of such size that it will spread sixteen, eighteen, or twenty feet diameter. A small line is seized round the edge of it, upon which a number of small pieces of sheet lead are put round, and slung by a line

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fixed in the exact center of the net. When it is suspended by this center rope, the lead upon the line round the edge of it, by the natural tendency of the weight, contracts it, so that, as it hangs, it occupies very little space.

It is used thus:—A man holds the center part of the rope and net coiled up in his left hand, the other part of the net in his right—In this position, where the water is shallow, he wades in—where it is deep he must be in a boat—when he means to operate, he gives the outer part of the net in his right hand a horizontal swing, throwing the whole from him exactly at the same time, but the end of the line by such a peculiar slight, that it instantaneously expands itself to the full breadth, the leads carrying it rapidly down in that direction—if the ground is sandy, and clear of stones, it may be allowed to go to the bottom—in its descent the fish entangle themselves in the meshes, or are carried down to the ground—in drawing up it sweeps the ground to its center, so that they cannot well escape—If the ground is rocky, it must be checked in its descent before it reach the bottom, when it operates in effect nearly as above said. Were each boat's crew furnishing themselves with such as these, of different sized meshes, larger and lesser, they might be the means of affording them a ready supply of the best bait, at most seasons of the year. By attending to the gulls, and other sea fowls, they would direct them where to fish; and, were they procuring for themselves

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themselves machines for keeping them alive, upon the principles formerly described, they might catch at once as many as might serve them many days, when thus preserved.

C. F.

LETTER X.

S I R,

AS the improvement of our salt manufacture is a matter of much consequence, I will, with due submission, presume to suggest a hint upon the subject.—When it is considered, that all the common or culinary salt, except pit or rock salt, is made from the same material, *sea-water*, it is supposed that, by proper attention and care, the artificial heat of fire may be so modified as to imitate the natural effect of the sun, by evaporating the water in a gentler and more moderate manner than is presently practised, and consequently produce the same kind of salt.

The process of making salt in warm climates is described thus: Sea-water is taken into reservoirs, from whence it is occasionally let into shallow pits of close compact earth, where the sun and dry air exhales the water by gentle evaporation, and leaves the salt consolidated into pretty large pieces, which being extracted, by raking it out before the whole of the water is evaporated,

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rated, must have less of the bittern or putrescent quality in it, than when the whole is forced off, as in the common method of making British salt, which is by boiling the salt water in flat iron pans, several times filled up, throwing in a quantity of blood to fine it, until the water is all carried off, leaving the salt in a whitish substance, consisting of many small particles.

It is imagined, that, by the strong agitation of the water, or brine in boiling, the formation of the salt is deranged, and broke into small flakes, instead of being formed into strong crustations, as great salt is by slow exhalation. To imitate this effect of nature effectually, the writer of this supposes, that, as the whole strength of the fire is not exhausted when it goes from under the salt boilers, were a slight but close building erected upon the end of the boil-house, and the vent divided into several flues running along the floor, over which flat leaden pans are to be placed; and were the salt brine conveyed into them by means of a pump and spout, when boiled down to a considerable degree of strength, or brine made from rock salt and sea-water put into such, the heat passing alone under the lead pans will continue the evaporation at no additional expence; which, as the surface will be greatly expanded, will be found very rapid, without allowing them to come to the boil, or even to simmer; for, if it does either, it destroys the intended effect of the lead pans, which is meant and is supposed would make a very perfect imitation of the natural process, and will yield a strong salt.

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Perhaps these leaden pans will bear to be several times filled up, before drawing out the salt from them; and as I find from Lord Dundonald's excellent treatise upon this subject, that British salt contains about one tenth part of bittern or extraneous salts, which, as it appears from his Lordship's method of refining, is soonest dissolved, and must be latest in forming, by attention to this slow process, the operation may be continued until the proper salt is all or nearly all formed, when it may be raked from the bittern, and that quite cleaned out to begin the operation a-new.

It may be supposed, that the process would be greatly accelerated, if the apartment, wherein the lead pans are, were lathed and plaistered above, leaving a few holes in the plaister roof, to which very light valves were fitted; and were a few stove flues led along from one end to the other, suspended at some distance above the surface of the pans, it would contribute to rarify the steam, and force itself through the valve-holes.

Upon these principles, as a small experiment, I dissolved, in a flat earthen vessel, as much salt as the water in the pan could contain in a fluid state, making a strong pickle; this was put into the stove of a sugar-house, to evaporate the water, supposing it would have left the salt nearly in the state of a solid crust, or in pieces of the size of foreign salt; but it was found formed into particles not larger than, and perfectly similar to, its original shape; nor did it appear to have had any tendency to

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assume the shape of square hollow cones, as I have found strong pickle do, when left to cool gradually, in former experiments. The flat pan was filled up again with pickle equally strong; but, when the water was evaporated, it was found to have acted exactly as in the first case, lying in a regular lair above, without altering the size or shape of the first formed salt. I wished to have continued the experiment, by beginning with seawater, and filling up the pan daily, as it evaporated; but as this might have given more trouble than perhaps would have been agreeable, it was discontinued.

Now I would think myself obliged by the opinion of any person versant in chemical matters, (if any such shall chance to cast their eyes upon this), saying if they think such a method of making salt, as hinted at, is likely to succeed, and to what they attribute the failure of the small experiment.

C. F.

LETTER XI.

S I R,

I HAVE now, in a cursory and rather imperfect manner, gone over the subject of the fisheries, and some matters immediately connected with them, shewing their very unprosperous state at present, with the supposed cause; and giving sundry hints at a few of the many improvements that have occurred to me that might be introduced; with a calculation of the necessary expence that

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that will attend the outfit of the proposed instructive fishery.

To place the propriety and even necessity of setting a good example in a conspicuous point of view, I must beg leave once more to take a short retrospective survey. In doing which, it is found, that, since the accession of King James VI. of Scotland, and I. of England, to the British throne, (a period of nearly two centuries), the nation has almost continually amused itself and the world with the importance of our fisheries, in the display of which many valuable performances have been wrote, from those of Sir William Monson (who made a voyage of observation to the Hebrides) and Sir Walter Raleigh, to those of Mr Knox and Dr Anderson.

Before and since the Union, many salutary laws have been enacted for encouraging the fisheries; and, within the last thirty-five years, it appears the British Parliament has generously bestowed no less than 400,000 l. in bounties. Yet, for all this, the real importance and true value of them remains in the same problematical state, and our fishers in equal want of public aid to enable them to carry on their operations as ever; and I dare to maintain, that, in all human probability, they will always continue to be so until they alter their plan; and this they seem not disposed to attempt, nor will they do it until the practicability and advantage of it is shown them by actual practice.

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Very fine systems for erecting towns and villages in the Highlands, with the distribution of boats and annual premiums, have been laid before the public, as if this alone would instantaneously retrieve the fortunes of the inhabitants, and establish the fisheries upon a prosperous footing. Erecting the intended villages is undoubtedly a measure originating in the finest feelings of humanity, and highly expedient; it is no new one; the original design was undoubtedly laid by King James V. and meant to have been begun by his grandson King James VI. but other important matters diverted his attention from it. Had not misfortunes overtaken King Charles I. it is highly probable, these districts and our fisheries had been upon a much more respectable footing than they are at present; however, what is past cannot be recalled; but let us not, my countrymen, allow ourselves to be amused and deceived any longer with vain hopes; let us take example from former disappointments, to be thoroughly convinced, that no reliance ought to be placed upon a boat-fishery, for accomplishing the so much wished for object.

Permit me to ask this single question: Were the eighty intended villages built, and were ten thousand boats employed in them, will this bring herrings or other fish into the lochs, or close to the land, where these boats can catch them? I presume, it will not be said there is the most distant chance it will; consequently the fishery will remain in still the same precarious state as ever, and successful only by fits and starts. The herring fishing may

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may fail altogether for several successive seasons, as it has but too often been known to do before; and, although cod-fishing in boats is not quite so precarious as the other, yet it is far from being such as promises permanent prospects of prosperity, to have a sole or even a principal dependence upon.

From good information I have learned, that the season before last, the cod-fishing at Stornoway in Lewis, where perhaps it is better understood than any where else in the Highlands, yielded L. 6 the man's share, and is reckoned one of the best fishings ever remembered; and that of Shetland is said not to yield above the one half of this; however, either of them makes but a poor equivalent for many months hard and hazardous labour, or the maintenance of a family.

What then must be the fate of these poor collected settlers, who cannot, with propriety, I suppose, be ranked in the class either of good fishers, farmers, or mechanics, if left without other resources? Or, is it probable, that monied men will be tempted by such prospects to take up their residence among them, and lay out their capitals in providing stocks of grain and other necessaries to give out in credit, in hopes of payment from the produce of the fisheries, while in the present precarious state?—I much fear they will not.

Were the plan of the Fishing Company, recommended in the first of these letters, taken up either by the *Joint*
T *Stock*

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Stock Company, or any other set of public spirited gentlemen, for which no more money is required in the outset than half the sum devoted for a similar purpose by one individual Irish patriot, I will endeavour to show the advantages that will result from it to the nation at large, as well as to the Highlands and Islands in particular.

As brevity is necessary, and as it would be tedious to enter into the minutiae of stating the profits to be expected from each branch of the fishery separately, I will just observe, that, if the proposed ten vessels are put under the charge of intelligent industrious people, one or two good fishers put on board each, and the crews made up of hardy Highlandmen, although they may perhaps know but very little of the business, if they are willing to learn, keeping in view the success of the Dutch, and what we may do, as we acquire knowledge at so much less expence of almost every thing, tear and wear of vessels in particular, I will venture to state the average chance of success and profits at from 40 to 50 per cent. per annum, on the capital employed; and it may even exceed this—what, from cod-fishing, herring-fishing, with the various other species of fish that may be turned to account, white fish may continue to yield near the same prices they do at present, after allowing very good wages to all hands employed.

The station where this fishery shall be carried on will very quickly become respectable. The servants of the Company being in permanent employ, whose earnings will

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will be regular, their expenditures will be expected, and may be depended upon, to be equally so. This will draw and attach a number of other settlers, as well boat fishers, possessed of a little property, as mechanics and others. The crews of the ten vessels, at ten men and boys in each, make a hundred; and it is probable, that, when success began to appear, the other servants and dependants of the Company, consisting of superintendants, coopers, ship carpenters, rope, line, twine, and sail makers, with various other labourers, &c. will be little short of an equal number. Now, supposing the half of these married persons, and each family to consist of five persons, old and young, this, with the unmarried persons, makes the whole number depending upon the Company amount to six hundred souls, besides the other settlers.

I will state the regular wages of the native married fishers at 20s. per month; less may be allowed for the young ones. All fishermen should have an interest in the success of their labours, to encourage industrious exertions; it should run upon the last of herrings taken by the vessel in the season, and upon the thousand sizeable fish, either of cod, ling, &c. taken by each individual, to be ascertained from a register to be kept on board for the purpose. Suppose this bounty amount to five or six pounds per annum; and as the wives and children, after they arrive at eight or nine years of age, may be employed in net-making, &c. for which they may draw five or six pounds more in the family, and bring the earnings

earnings of each up to 23l. or 24l. a-year—This, as the men are all the time to be maintained aboard, makes a very handsome provision, from which, with œconomy and prudent management, a part may be saved.

As it will be necessary to have a few ship carpenters at hand, to be ready to dress and pay the vessels bottoms from time to time, as well as to repair any casual accidents, one of these should be a capable ship-builder, to act as foreman; and, that the wages of these may not lie a dead weight upon the concern, as it is to be hoped only a small part of their time will be required for repairs, a stock of building materials should be laid in, and keep them constantly employed in building more of these small vessels for the fishery. It would be doing essential service to the country, to take a parcel of young lads apprentices, to be instructed in the business; this would have the double advantage of bringing the prices of these vessels low, and, by increasing the number of carpenters, encourage the practice of ship-building.

Were the returning profits of the concern progressively employed in building, fitting out, and using these vessels in the fishery at sundry different stations, this, with the spirit with which the plan will be taken up and carried on by many different adventurers, in consequence of matters being put upon a proper footing, and showing it to be a profitable business, will increase the number of these vessels surprisngly, and soon produce an extraordinary number of good fishermen, and in them the nation might

might always depend upon finding a valuable resource of the hardiest and best of seamen, which boat-fishers cannot be properly called.

After a few years perseverance, when matters are fairly entered upon a good footing, the number of the Company's vessels considerably encreased, and the fishermen have acquired a proper degree of knowledge, perhaps it will be prudent not to extend their practice farther; for, although I will not take upon me to prescribe limits, yet I should be sorry to see any body of men attempt to grasp at any thing like a monopoly of the trade. What is wanted, and I would beg leave to be understood as recommending, is the setting a good example, patronising and encouraging all honest well meant endeavours in it, by furnishing necessaries to poor adventurers, and buying their fish, &c. upon liberal principles, until it is fairly established upon a firm solid basis; when the increasing number of vessels may be sold off upon equitable terms, to those fishers whose savings may enable them to conjoin their stocks, and become adventurers on their own account, or they may be furnished to fishermen upon the same terms the merchants of Ostend do to their fishermen.

There a proper fishing crew associate themselves together, and agree for a year certain with a ship owner, for a vessel completely fitted for sea, he furnishing lines, trawl nets, &c. for which he draws two-fifths of the produce, and the crew the other three-fifths; provisions, salt,

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salt, and casks, are laid in upon the general account, and paid for out of the first part of the fish money; they are always put up to public sale immediately upon the vessel's return to port from every voyage. The crew's three-fifths is divided among them, according to their own particular agreement; the young ones having less than the old experienced fishers; the captain having but a mere trifle more than the rest, only he is allowed a small matter from the owner for taking charge of the vessel. The owners sustain all the usual tear and wear of ship and furniture; but for all accidental losses in cables, anchors, sails, or ropes, it is a general concern, of which the crew pay three-fifths; and this serves as a great check and guard against neglect or carelessness. These compacts are sanctioned in a particular manner by the laws of the country, and never are nor dare be violated. I do not pretend to know if the herring fishery is carried on by them in this manner or not; but, if it is, as the expence and risk of nets is great, I suppose the crew must be entitled to a much less proportion of the produce than in the other.

This places the fishers upon the true principles of adventurers in the trade without the necessity of any capital, ensures the utmost economy, and must call forth the greatest exertions of industry in the business, and is a measure that might be extremely applicable to the Highlands, after the inhabitants have acquired knowledge from a while's practice; and it may be done with the greatest safety, as the vessels, &c. may be insured.

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I am fully convinced, that a few years experience will make these people, naturally hardy, as good fishermen as any in Europe. As they acquire knowledge in the business, they will gradually acquire property; which, when they have once done, the scene will be agreeably changed with them indeed; prospects will brighten, smiling industry and affluence will soon pervade every bay, creek, and valley of that so long neglected country. Then fishing matters may be in part resigned to them, they being fully instructed in all the different operations of ship-building, equipping the various fishings, &c. every one of which will be conducted with much economy, skill, and industry. The consequence of which will be, that fish will be furnished at more moderate rates, and, perhaps, with half the prices they presently yield, it will be a more profitable business.

For several years at first, the Company will be under the necessity of providing a regular and sufficient supply of provisions and other necessaries, not only for their fishers, but the other settlers immediately dependent upon them; nor can this be attended with any inconvenience or loss, but, rather an advantage, that they be paid for their labour partly in useful articles, as the Company can lay in every thing upon the best terms, and have them delivered by the vessels that are freighted from time to time to call at the different stations to carry their fish to market. By this means they can furnish these articles on the lowest terms, to the mutual advantage of all parties.

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It would be of much consequence that the Company should pay the utmost attention to the cure of their fish, either wet or dry, and encourage every attempt to contrive doing it various ways, to make them suitable to different tastes and for different markets; and it would be necessary that they corresponded with the British consuls or principal merchants at the different ports of Europe, to take their opinion and advice anent the quantity and quality fitting for each, and cause care to be taken that what is sent to each be according to orders, that the character of our fish be established on a solid footing.

When fishing, curing, and exporting have been practised some time, the Company will have it in their power to point out to the Legislature the enactment of such laws as bid fairest for enforcing a proper compliance to such regulations as may give the best chance for retaining advantages thus gained.

Perhaps it will be found prudent, when these foreign markets are once fully and fairly tried, and the utmost extent of sales ascertained, to recommend, that a proper understanding be supported among the fish exporters in general, so as to prevent the danger of any particular market being overstocked, or glutted with an extra quantity, to depreciate their value below what they can possibly be furnished for without loss, to the manifest injury not only of the individuals concerned, but to the nation at large. I apprehend the surest way to enhance a demand, and secure a consumpt of any commodity, is to furnish it upon

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as low and equitable terms as possible; but, if ever it is reduced under that, it is no easy matter to raise it to its proper level again; in doing which, both the exporters and consumers may suffer, either by having sales retarded, or the market not regularly supplied for fear of a loss.

I know it is supposed by many sensible men who have not accustomed themselves to investigate the matter closely, that, were our fisheries carried on to any considerable extent, it would not be possible to find markets for them; but let us not be afraid of this. If we had several hundred vessels successfully employed, markets will be found. Britain within itself contains a mart for some thousand tons annually (and this will always be found the surest); every town, village, hamlet, or cottage in it, will contribute to the consumpt, when they are presented in good condition and at reasonable rates; and it will be doing essential service to the consumer, as well as the fisher, to furnish them upon such, when it may well be supposed the large manufacturing towns of Manchester, Leeds, Birmingham, Nottingham, Sheffield, &c. would consume vast quantities.

Even rival nations, although policy may dictate to them not to permit the purchase of an article the capture of which may be supposed to contribute to the strength of the so much envied British navy, yet it is to be hoped humanity will prompt them not to refuse their subjects the blessing of a valuable, wholesome and nourishing ali-

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ment, when offered to them at the low price at which we will be able to afford it.

To bring matters to this happy state, I will again repeat it, that nothing will more contribute or so soon accomplish it, as a Company, the basis of whose principles are formed upon a generous and patriotic regard for the honour and interest of their country, in the execution of which, they may highly promote their own interest, and consign their names to posterity with the highest honour. Such a Company, as is before said, can better afford the expence of introducing the so much wanted improvements necessary to establish our fisheries upon a good footing than private adventurers; nor can they, in their divided and unconnected state, be supposed capable of making much exertion in endeavouring to open new markets, as the execution of this must unavoidably be attended with expence, some risk, and detention or outlay, sufficient to deter those whose quantity is small from exposing themselves to the hazard, that would be but trivial to a connected body, who might depend upon having any small casual loss at one place amply compensated by advantages gained at another.

The duration of the contract for prosecuting the fisheries may be optional; but it may be depended upon, that from seven to fourteen years practice will produce a surprising revolution in this branch, when the farther necessity of bounties will be done away, and the state be yet amply rewarded for the immense sums that have been be-

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flowed upon it to so little purpose hitherto: When a flourishing branch of the British commerce is fairly established, and a regular foundation laid for breeding a numerous body of hardy seamen, then may we with some propriety and confidence apply to, and call for the aid of Government to cut canals and highways, build bridges, &c. where necessary for forwarding these national purposes.

The profits of the concern may enable the Company to carry on other patriotic designs, if they find themselves so disposed, such as establishing coarse manufactures, adapted to the situation and circumstances of the country, opening metallic mines, and, above all other things, working coalleries; for next to a want of provisions will the want of firing be felt in the new villages; and in vain will it be to suppose any other method can be devised for the preparation of peat or turf than the common one, which is both a precarious and laborious work in any country, even when moss is nearly situated, and must be particularly so where it is so subject to rain as the west coast is said to be.

It is upwards of eighty years since Martin and others gave accounts of there being the appearance of coals in Mull, Ardnamurchan, and Sky; and Dr Anderson has confirmed this in his late report. Such of them as are found most centrally situated, and where there is a prospect of their being easily cleared by water levels, so as to be wrought at little expence, should be opened; and here
saltworks

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saltworks should be erected, that this so essential article for the fisheries may be furnished to them in the readiest manner, and upon the best terms, which, in the event of coals being opened, will be the case, by having the rock salt from the neighbourhood of Liverpool delivered at an easy freight by vessels bound to the east country.

C. F.

LETTER XII.

S I R,

SINCE these letters were begun, I have got a copy of the new fishery bill—With humble deference, I beg leave to make a few remarks upon it.

The alteration in the mode of bounty is undoubtedly a good one, properly enough adapted for promoting industry; and that of allowing a shilling per barrel of herrings to boat fishers, extremely proper indeed. Had it been a little more explicit, how the quantity is to be ascertained, it had been well, and perhaps have saved some trouble: But vain would it have been to expect to see a perfect bill; for, in the present, which, however old, may only be termed an infantine state of the fisheries, who can say what clauses would make a perfect one? However, if the gentlemen, who have so warmly and worthily interested themselves in the cause, shall continue their enquiries, endeavour to introduce improvements, and study the effects they gradually produce, it may, and

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I hope will, in the course of a few years, bring matters much nearer to perfection than they are at present.

The additional trouble or expence, to have included the whole of the unrepealed clauses of former bills, would have been so trifling, that it is a pity it was not done; for there are many persons who will wish, and are interested to know the full import of the law, that perhaps have not an opportunity of procuring those referred to.

It is surprizing to think upon what principles the framer of the bill (for I cannot think it could be the meaning of the Legislature) could suppose that vessels built in 1779, or a few years prior to 1780, should be so worn out in the course of these few years, as to be deemed unworthy of being admitted upon the bounty. This is too tantalizing to be taken for the real intent of a British Parliament, as it throws such an extraordinary impediment in the way of a numerous body of people, whom the bill was expressly meant to serve, as being considerable adventurers in the trade, having invested a considerable part of their property, many of them their all, and perhaps some of them much more, in building and purchasing for the fishery such vessels as were thought fit for the purpose. If Government is really serious in their intention of encouraging adventurers in the fishery, what is it to them although the vessels are twice six years old, if they are British built, and if they are properly equipped? The premium upon the deep sea fishery is a very good

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good mode of encouraging that practice: There might have been another set instituted for the north-west coast; for there, it is certain, that method of fishing well may, and certainly will, be carried on some time or other.

The salt laws relating to the fishery have met with considerable improvement, but they are still very deficient to what they should be, to give full freedom, nor will perhaps the security of collecting the revenue from the article permit of their being so, until they are totally altered. It would be much for the advantage of the public, that Lord Dundonald's plan of commuting the duty were adopted: This would save much expence in the collecting, as well as trouble, and completely relieve the fisheries.

Salt may now be imported from England for the fisheries, whereby they will be served rather lower than usual; and it is said Liverpool salt is of a better quality; there they no doubt can afford to manufacture it cheaper than it can be done in Scotland, on account of having the rock salt; but that it should be allowed to be charged 1s. 6d. per bushel in the Frith of Forth, when it sells for 10d. at Shields, is a paradox not altogether unworthy of public notice: True it is, that what is bought for the Iceland fishery is only charged 8d. in the Forth; but all that is bought for the consumpt of the country, and the home fisheries, is unvariably charged 1s. 6d.—and on this account, and the duty, the poor fishers all along the north-east coast, who use several thousands annually, cannot

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cannot buy a bushel under the extravagant price of 3s. 4d. or 3s. 6d. each; of this I am certain, having had occasion to pay it very lately, in a small fishing adventure I happened to be concerned in.

Salt is only allowed duty free for the herring and Iceland cod fishery, or the cure of what cod is taken during the herring fishing season. The duty must be paid for all salt used in curing cod, ling, tusk, &c. that are taken upon the coast before and after the herring season, or at all times, if taken by boats or vessels not employed in the herring fishery. A debenture is indeed drawn for such fish, when exported; but nothing is recovered for what is used at home. Why this discrimination in favour of the Iceland fishery, and why is the Newfoundland fishery still more favoured than the Iceland, while our own home fisheries are so oppressed?

It is to be observed, that salt is only used in the cure of such fish as are to be kept for some time, or sent to distant corners of countries not so happily situated for the supply of this valuable article of food: Therefore, humanity points out the propriety of relieving this one, taken from the ocean at the hazard of so many lives, from every restraint, so as it may be furnished at the lowest expence. Were even the free importation of salt from Liverpool, upon payment of the Scots duty, permitted, the poor fishers might be supplied much cheaper than they are at present, the price there being only 6d. per bushel, allowing 10s. freight per ton or 40 bushels

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bushels, which is 3d. the bushel—at this freight I know it could be landed upon the east coast, and it would stand only half the prime cost at the Salt-works in the Frith of Forth.

The bounty vessels are now very properly allowed to enter upon the fishery as early as the first of June.— It is a certain fact, that, for these several years bypast, herrings have been seen in very large bodies upon the east coast in May, and even sometimes in April. It is well known, that those taken in June are so very fat, rich, and tender, that the Dutch, Hamburgers, &c. encourage bringing them as soon to market as possible, as they esteem them a great delicacy, and pay a high price for them: Therefore, small vessels, called yangers, attend the Dutch fleet, to carry all taken prior to the middle of July directly home for immediate use, before they are long in the salt, as they are reckoned too tender for curing and repacking.

By keeping these rich tender fish three months in salt, and that in their bloody pickle too, as our vessels are obliged to do, unless they make full cargoes sooner, it is obvious, their flavour must be injured, and their value lessened. When we have more knowledge of the trade, encouragement will be held out to send these fish to market as soon as it can be done; for instance, it will be recommended to those fishing on the north-east coast, to land their first taken fish, from time to time, either at Shetland, Orkney, Peterhead, Aberdeen, &c. so as they may

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may be sent to the southward without loss of time; and it is probable, that, in process of time, the manufacturing towns, both of Scotland and England, may offer annual premiums for the first certain quantity of herrings sent for their supply.

The clause permitting the bounty vessels to buy herrings of the country boats has been slightly touched upon already; they are, however, prohibited from returning to their own ports within less than three months, if they have purchased any part of their fish, although their cargoes were completed much sooner. Now, I will beg leave to make a supposition, that, for the first three weeks after the fishing vessels arrive at the ground, the fishery has but an indifferent appearance, yet one of them happens to fall into a loch where a good many of the country boats are employed, from whom the master purchases, in the course of this time, 20 or 30 barrels of herrings; the next week the fish sets into this loch so abundantly, that their own boats complete their cargo, and they might go home, but they must lose two months time, and retard their sales, for they dare not return until their three months are expired, but at the certain loss of their bounty money, unless they perjure themselves, by taking a false oath, that the whole was caught by themselves.

Were the cisterns recommended in these letters built, and a proper stock of salt kept in them, there the fish taken by the country boats may be deposited and cured; and if the bounty vessels have not completed their cargoes

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within their time, they may buy them here at the end of it.

If, on the other hand, the fishery shall at any time prove a very abundant one, as sometimes has happened, and if the cisterns were many and large, with a plentiful stock of salt in them, the vessels, after completing their cargoes, may remain fishing while the herrings continue in the lochs or upon the coast, depositing them in the cisterns until they are filled, whereby they might perhaps have one or two extra cargoes each to return with casks for; and it is possible that, by this means, all the three cargoes might be landed in the Frith of Clyde, or other distant ports, in little more than three months, even by the present practice of fishing, although it is far from being the best.

At present, the real value of herrings is but little known in many sea-port towns of the islands, and far less in the interior parts of it. Of this, the author of a very sensible pamphlet, entitled the *Fisheries Revived*, wrote about the year 1749, seemed well convinced, when, in his scheme for carrying on the *Free British Fishery*, he said: “ And whereas encouraging the consumpt of fish in Great Britain would be of as great benefit to the undertakers of this trade as to the nation in general, Therefore, if the Commissioners for granting wine and ale licences, were to be empowered to grant to every person that comes for such licences, the said licence of 5s. less, upon condition that they take one barrel of herrings;

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‘ herrings;—if two barrels 7s. 6d.—and if three at 10s. less, if the said persons make oath that the said herrings are for their own use only.” Were the fisheries prosecuted with spirit, so as quantities could be furnished upon reasonable terms, and if such a measure as the foregoing was adopted, and taking a certain quantity of herrings enjoined, or even recommended, although the bounty granted to vintners and beerhouse keepers were much less than the foregoing, and only the export debenture at 2s. 8d. it might be the happy means of spreading a relish for them among all classes of people, and thereby contribute, in part, to keep down the price of provisions: Of how much consequence this is in any, but particularly a populous manufacturing country, is too obvious to need illustration.

It is not so much the importance of the fisheries that I meant to have insisted upon, as the propriety of the measure seems pretty well admitted: But I am sorry to say, that the practicability of making it a profitable business is not so well believed; for our many blundering disappointments have fixed a rooted belief in the minds of the generality of people, that it cannot succeed in our hands. It was a supposition of this being the case that induced the writer of these letters humbly to offer a few sentiments on the subject, the result of many years deliberate attention. It is true, there are many of them in the true state of speculation; but the grandest inventions, or greatest discoveries ever made in arts and sciences, could at first be viewed in no other light than merely speculative,

tive, until reduced to practice, nor can it be supposed possible that new improvements can be introduced by any other means. It is hoped those suggested here will not be thought irrational: If they are attended to, there are others in reserve, that will perhaps be brought forward; for it will give him infinite pleasure to contribute what he can to render the profession of a *Caledonian Fisher* both profitable and respectable.

C. F.

F I N I S.