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T H O U G H T S  
ON THE  
N A V I G A T I O N

BETWEEN THE  
FRITHS OF FORTH AND CLYDE,

AND

A Navigable Cut through the Peninsula of CANTYRE:

IN A LETTER TO

HIS GRACE THE DUKE OF QUEENSBERRY AND DOVER,  
President of the Company of Proprietors of the FORTH and CLYDE Navigation,

FROM

A CITIZEN OF EDINBURGH.

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L O N D O N :

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T H O U G H T S

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NAVIGATION between the Friths of *Forth*  
and *Clyde*, and a Navigable Cut through  
the Peninsula of *Cantyre*, &c.

MY LORD DUKE,

AS I have had for a course of thirty years very extensive experience of the Coasting Navigation round this island, and of that with Ireland, and have thought much on the subject of the above Navigations, and on the effects which they may probably produce, I have judged proper to offer these observations on them, with all submission, to the Public.

They are intended chiefly for the information of persons of rank, who, from their situation in life, and distant residence, may not have a proper idea of the high and universal importance of these Navigations to the three kingdoms in general.

I have presumed to address this Letter to your Grace, not only as you have shewn from the beginning the most unwearied and disinterested zeal for promoting this great national work, but because you have, upon all other occasions, countenanced every proper plan for the good of your native country, and have indeed supported uniformly, for above half a century, a character as firm, upright, and benevolent, as ever that country exhibited.

The oblong form of Great Britain renders the navigation round it at all times tedious and expensive, and in times of war very hazardous. In the winter season it is likewise very dangerous by the Channel; and during that period the passage by the Orkneys is impracticable. This is a very great bar to its improvements in agriculture, manufactures, and commerce, by the great difficulty, delay, and expence, of transporting the products, raw materials for manufactures and improvements, and the bulky manufactures themselves, and other articles of commerce, from one side of the island to the other.

The two Friths of Forth and Clyde near the North border of England, which are remarkably safe and deep inlets for shipping, run so far navigable inland from each side of the island as to leave only a small space between them. This singular situation was particularly remarked seventeen hundred years ago by the historian Tacitus, who says, the heads of the two Friths were separated only by a narrow neck of land, and the natives when pushed beyond that, were driven as it had been into another island. The space between the navigable tides is little more than twenty miles broad in a direct line, and the country remarkably flat; so that Nature has afforded the most convenient track for an artificial navigation across, and a short communication thereby between, the two seas and opposite sides of the island.

The making of this navigation has long been the great object and earnest desire of Scotland in general, but particularly of the *General Convention of the Royal Boroughs*; and it is humbly thought, that since the period that commerce and improvements became objects of policy in states, and the constructing of artificial navigations by *locks* was discovered, there is not perhaps any other country in Europe, where, in the like situation, a proper free navigation would not long ago have been made at the public expence.

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The poverty of Scotland itself, and particularly the very great distance of the seat of the legislature and government, have no doubt been the only causes that have hitherto retarded its execution here. In the neighbouring country of Ireland, where the seat of the legislature is near the centre of the kingdom, such a work would doubtless long ere now have been made at the public charge.

In the year 1763, a survey was made of this track, and an estimate of the expence of a canal from the Forth to Clyde, by order of his present Majesty, who was graciously pleased to countenance the plan, and it was then hoped a free navigation would have been made between the seas; but this, from changes in administration and other circumstances, did not take place.

In the year 1768, a number of public-spirited noblemen and gentlemen, English and Scots, obtained an act of parliament, empowering them to make this navigation seven feet deep, from Carron Mouth in the Forth to Dalmure Burn in the Frith of Clyde, and to levy Two-pence a ton *per mile*, with a few exceptions, on all goods or vessels passing through it. And surely no plan of this sort was ever entered into with views more liberal and disinterested, or less with a prospect of pecuniary advantage. They even subjected themselves, "That if ever they were in a condition to divide above 10 *per cent. per annum*, that the rate of tolls should be lowered in proportion to such surplus."

The Convention of Boroughs had thus for some time hopes that the navigation would be effected with some advantage to the island, though far less than it ought to have been from the high rate of the toll, which is equal to a prohibition on many bulky articles of small value, but very essential to the manufactures, commerce, and improvements of the kingdom. This Company's subscription was to have been 150,000*l.* but never amounted to 140,000*l.*; and many of the subscribers did not make good their payments. They have,

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however, expended above 150,000 l. on the work, and are now a very considerable sum in debt. The navigation is carried on by a branch to within a mile of Glasgow, so as to admit seven and a half feet water, and is now a great benefit to that city, and a partial one to the rest of the kingdom.

But the great original object of joining the two seas, and enabling vessels of good burden in the foreign and coasting trade to pass through between them, without unloading their cargoes, remains unfinished, and the work has been quite stopt for above two years past, for want of money; to the inexpressible regret and loss of the kingdom. There remains to be executed about six miles of the track, the most difficult and expensive of the whole, on account of the situation of the ground and the great number of locks and bridges necessary. The expence is estimated at 50 or 60,000 l. a sum which the Company, being a patent one, and individuals not engaged for the debts, are totally unable to raise.

The Convention, as guardians of the trade of this part of the united kingdom, propose now to apply to the legislature for aid, in any mode that may be judged most proper, for having this work speedily completed, either by the public taking the navigation into its own hands, and completing it, or by enabling the Company of Proprietors, by a gift, or loan of money at a low interest, to do it themselves, and under a condition, if it is by gift, of their lowering the toll to 1 d. a ton *per* mile on all such bulky but necessary articles of produce and manufactures of small value as cannot afford to pay more; and they humbly flatter themselves with having the hearty support of every British subject in so reasonable a request.

It will be obvious to any person of knowledge in trade, that a great variety of articles, such as coals, culm, turf, iron, lime, free and other stones, salt, coarse home-wood, and bark; unthreshed  
corn,

corn, cut grafs, hay, straw, soapers ashes, chalk, empty casks, staves, and many other articles, cannot afford to pay 2 d. a ton *per* mile, or a tax of five shillings a ton for passing all the way between the Friths: such articles ought, therefore, to be subject to no more than 1 d. a ton *per* mile at most, otherwise the high toll will in effect be a prohibition to them, though they are most necessary and essential to the commerce and improvements of the kingdom.

If the navigation is completed into Clyde at Dalmure, and the toll on coarse bulky goods reduced to 1 d. a ton *per* mile, the advantages of this communication to Great Britain and Ireland will be incredible, especially in time of war.

The inspection of a map will shew that they will be fully as great to England and Ireland as to Scotland; for the mouths of the two Firths join immediately with the two former countries: But the Orkney islands, and that narrow part of Scotland on both sides adjoining (unless a passage, to be hereafter mentioned, is made through the peninsula of Cantire) will not reap much benefit by it; for their navigation round to either side of the island is short, and insurance in time of war low, quite unlike that by the long, dangerous extent of the English channel: On the other hand, the whole coast of England, and especially from the Thames and Severn northward, will be remarkably benefited by this navigation, and particularly the east side, in its great trade with Ireland.

This last island will likewise receive the highest benefit, especially in time of war; her great linen trade with London, and the fine goods of that city in return, have in such times been loaded with 10 to 15 *per cent.* insurance, and high freight round the channel; in-  
somuch that the goods have been often known to be carried by land between London and Chester. These may be conveyed by this passage at two or three *per cent.* premium; there being in time of war constant regular convoys between London and Leith; and

and the freight may also in this way be one half lower from the North of Ireland than it would be by the Channel; even at present, while we have no enemies but rebels, who reside at 3000 miles distance, it would be highly useful to the Irish and West Country Trade.

The advantages to Ireland and the West of England, and especially the great trading county of Lancafter, in other branches of their commerce with the Continent and East side of Britain, and *vice versa*, in point of freight and insurance, will be very considerable. Further, the insurance to or from the West Indies and North America, by the North of Ireland, with the Firth of Clyde, is known to be one half less in time of war, than with London and the South-east parts of England through the Channel; a circumstance which has greatly favoured and advanced the American trade of Glasgow. Many of the fine goods, at least between the Colonies and London, may pass by this Channel in such times at a low insurance. *And, upon the whole, it is not to be doubted but England and Ireland will send far more value by this communication than Scotland will do in time of war; as there is no comparison in the value of their respective trades.*

The keeping corn at a moderate price is justly and constantly a great object of the legislature, and the navigation in question will, when completed, greatly contribute to this salutary purpose. It is well known that the West side of the island, even in times of plenty, requires great supplies of corn from the East side. Now, besides the growth of the Scots coast, the corn of the large growing counties, Northumberland, Durham, Yorkshire, and even Norfolk, may be transported to the West coast by this passage, at 10 to 20s. a ton freight and insurance, according to the distances which at present costs 20 to 40s. sometimes more, in time of war; or, in other words, for about half of what it costs at present. This is an object of no small importance in the police of the kingdom;

dom; and the saving in freight and insurance upon other articles will be in the same proportion.

It will be of great advantage in the article of fisheries, especially of herrings, the quantities of which in former times have been known to be larger on each side of the island, than the particular hands, stocks and vessels belonging to either separately have been able to manage; this will not probably be the case, when this short and easy communication is opened.

It will give a very great facility, and save much time and expence in the transportation of artillery, provisions, stores, and even troops, from either side of the island to the other, and to and from Ireland; and in supplying shipping, camps, or garrisons; objects always of importance, but especially in time of war, insurrections, or piratical incursions. Our trade will also be protected by a smaller number of cruizers, and at less expence; the strength of Britain and Ireland will be increased, by their being rendered more accessible and compact, and as it were contracted within a narrower circle, especially if the passage through Cantire (to be afterwards mentioned) is also made.

The improving and civilizing the Highlands and Islands of Scotland has long been justly an object of the legislature; and the rents of some Scots forfeited estates, from 8 to 9000l. a year, are at present vested in a board of Trustees to be employed for that salutary purpose.

The great distance from the civilized trading parts of Scotland, and the almost insuperable difficulties of access to them by land across the country, are the chief, perhaps the sole, causes of the long unpolished, rude state of these Highlands and Islands.

Every one knows they are inaccessible from the East side by land for any purposes of trade or improvement. The communication by sea from the Firth of Forth, by the Orkneys, is not only above 500 English miles distant from Fort William, which



may be reckoned the center of that country, but is also impracticable in winter; and on the West side they are in a great measure cut off from the Firth of Clyde, by the long, dangerous navigation round Cantire.

The North-west side of the Frith of Clyde is formed by the peninsula of Cantire, which stretches about 80 miles South-west from the mainland of Argyle towards Ireland and St. George's Channel. The long and dangerous navigation round this peninsula, which requires different winds, in a great measure cuts off the sea-communication as above said, between the Frith of Clyde and these Highlands and Islands, or at least renders it extremely difficult and tedious. Nature has again here bountifully supplied the means of an easy artificial navigation through the peninsula. One may be made at Loch Crinan, where the distance is only five miles of flat land between the tides: at another place, the two lochs, or small friths, called Tarbet, run so far inland from each side, as to leave only a mile's distance between the tides. The ground is also so flat, that the historian Buchanan informs us, the natives in former times were in use to hawl their small vessels called Birlings, of several tuns burden, across it. At this place a navigable cut may be made without locks, and in either place a convenient navigation by the use of them. Surveys and estimates of the expence at each place have already been made by order of his present Majesty. The cost is very moderate, and of no consequence, in comparison with the great advantages to be obtained by the communication.

If this also is done so as to avoid the long dangerous navigation round Cantire, (and without this the communication cannot be said to be complete for Scotland) these Highlands and Isles will be brought about 150 miles nearer by water to the large trading city of Glasgow, and the neighbouring civilized industrious country, and they will be drawn 300 miles nearer to Edinburgh and

and the South-east parts of Britain. A minute accuracy is not pretended to in these distances, nor is it material. Any person who pleases may satisfy himself by looking at a map, a careful inspection of which will also more strongly point out the advantages of these navigations, than any thing that can be here offered on the subject.

It is obvious that this ease of communication will soon have an amazing influence, by uniting these remote parts in some measure with the civilized country, by promoting fisheries, manufactures, and industry among them, giving the most distant inhabitants thereby the means of being constantly and usefully employed, and banishing idleness, the greatest source of vice, and of their disloyalty in former times.

The Islands and West coast of Scotland North of Cantire, as appears from Scots history, have on many occasions proved very troublesome to the rest of the kingdom before the accession of James I. to England, and since that period they have been a load on the united kingdom. Lord Chesterfield, in one of his letters, long after the jurisdiction act was passed, emphatically calls this district *a very sore place of the kingdom*\*; and it is impossible to devise any salve so cheap and proper for such a sore as what is now proposed.

This track of country, my Lord, is possessed by a numerous prolific race of people, of hardy bodies, and acute natural parts; they have hitherto been unproductive, as Dr. Smith expresses it, and of little use in the state; or to use a military phrase, they have never been brought into the line, their remote situation separating them in effect from the rest of the empire, and of late years they have made many emigrations. The measure now proposed will prevent this, by finding them the means of employment and

\* Vol. ii. of the Memoirs, p. 415.

subsistence at home, and giving them a proper market for their fish and land-productions in Clyde and other parts. They will also prove an excellent nursery for our fleets and armies, and especially to the former, as their situation in islands, and on coasts and bays of the sea, and their constant practice of fishing, habituates them to navigation. Upon the whole, the improvement of this large track of country may add more real permanent strength to the kingdom, for a trifling expence, than any scheme of colonization or of new discoveries that has at much expence been tried for a century past, or that can well be thought of in future. For the strength of a state consists, as much, perhaps more, in the number of hardy, industrious, obedient subjects at home, as in the wealth and great extent of distant territory.

It were easy to shew that these navigations, when completed with a moderate toll, will do more in one year for the wise purposes of the law for civilizing and improving the Highlands and Islands, than the rents of the forfeited estates, as hitherto applied, will do in twenty years. No reflection, however, is here meant on the honourable Board of Trustees, who have no doubt acted as well as circumstances and the nature of their constitution would admit.

From what has been already said, it is almost unnecessary to mention the extreme impropriety of comparing the great communication between the Forth and Clyde with any of the inland navigations of England, the circumstances and object of them being in a great measure different. The navigations in England serve very good purposes in common with this, for the accommodation of the trade, manufactures, and agriculture of the particular districts through which they pass: but the English canals are all of them narrow and shallow, and for lighters only; they are generally but from 15 to 20 feet wide, and from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  feet deep, and the lock-gates but 10 to 12 feet wide. Nature has

made it impossible for any of them ever to answer the purpose of a general communication between the two seas, by which vessels of considerable burden in the foreign and coasting trade can pass without unloading their cargoes, consequently none of them can ever be any object for Great Britain and Ireland in general. There is not a place in the island, south of the track in question, where the distance between navigable tides of equal depths would not be four or five times at least that of ours, and such length would increase the toll out of measure. The perpendicular height of the ground would also be double, and there are no such safe or proper communications with the sea; it seems therefore quite unnecessary to enter any further into the comparison.

To such as may still doubt of a navigation of  $7\frac{1}{2}$  feet depth, and about 56 feet wide, being large enough to allow sea vessels to pass, it may be observed, that the locks are 75 feet long, and their gates 20 feet wide; that vessels may be constructed of a large burden, drawing only  $7\frac{1}{2}$  feet water, especially for short voyages; that almost all vessels draw a good deal more water in the after than in the fore-part of the ship, and by trimming them on an even keel, which is done with great dispatch and facility, and is universally practised by shipping in taking shallow bar harbours, less depth of water is necessary. Part also of a large vessel's lading may be easily put into a lighter, and drawn at her stern till she passes the canal and reaches deeper water, when it can be reloaded. True it is, that a greater depth of water would have been very desirable, and still more beneficial to the Public; but not to mention the great additional expence of such a work, the engineers, it seems, thought that larger lock-gates would have been very unmanageable, and it would also have been very difficult to make bridges and other works of larger dimensions than the present, so as to be durable.

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Upon the whole, the Convention would earnestly obtest every lover of his country in the British Islands to give countenance and assistance to a scheme which promises so well to each of them, which must obviously tend to the improvement of our lands, to the creation and extension of trades and manufactures, which at present either do not exist, or languish by the great distance and expence of carriage between the places of the production of the raw materials and those that are properly situated for working them up or for their consumption;---a scheme, the small expence of completing which, in the most ample manner, will soon be much more than compensated to the public funds by the addition of customs, excises, and other taxes, which, from an increase of trade and manufactures, it must of necessity produce. It is known, that this was the belief of a late great finance minister, who, though much an œconomist, was willing that this work should have been executed in the most ample manner at the public charge. The noble Lord, who now so worthily presides in his Majesty's administration, yields to none of his predecessors in judgment, penetration, or zeal for promoting the great commercial interests of the nation; and it is to be hoped, that when this matter is properly explained to his Lordship, he will also be favourable to it. The Convention, therefore, flatter themselves, that a proper aid to so noble a work, which would have been granted by any of the smallest states in Europe, will not be refused by the legislature of the greatest commercial empire in the world.

They are humbly persuaded it will, as formerly, have the approbation of our most gracious Sovereign, who delights in the welfare and prosperity of his people. Perhaps it may be considered as a fortunate circumstance in his reign, that, as the first plan of this navigation was begun under his auspices and by his direction,

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tion, his Majesty will now have an opportunity to put the finishing hand to a work the most useful that was ever undertaken for the general benefit of his kingdoms. The proper completion of it must add to the glories of his reign, and render his name, and that of his ministers, respectable and dear to future ages.

No one thing done for France by Lewis XIV, or his minister Colbert, has endeared their names so much to posterity as the canal of Languedoc; a work which, though of six times the expence, is not of such utility as this will be when completed, because it is only for lighters and not for sea vessels. Such works have been objects of the care of many great princes and their ministers. I shall mention only Henry IV. of France, and his minister Sully, who are generally held up as patterns, especially in point of œconomy, to those who govern states. At a time when the advantages of trade were less known and attended to than at present, Sully observes in his Memoirs, and other contemporary authors confirm it, that this great and amiable monarch delighted himself in public works for the security and augmentation of commerce; that he sat frequently in consultation with his ministers about the Canal of Briare to join the rivers Seine and Loire, and though a great œconomist, he laid out a considerable sum of public money upon the undertaking. The minister Sully considered such communications as the *infallible means* (these are his own words) of drawing great commerce to a country *without much expence*, and though sufficiently occupied with other important matters, he even went in person to accompany the engineers in their surveys for this canal of Briare, lest they should make any mistakes in taking their heights or distances.

The Romans, the wisest people on earth, were (though not a commercial nation) famous for the great utility and capacity of of their public works, and the first senator in that great Empire would



would have thought himself honoured by the superintendence of such a work as the present.

The Convention are, therefore, humbly confident, that when the situation and circumstances of this great national work, perhaps the noblest and most useful recorded in history, are properly laid before his Majesty and his Ministers, they will imitate such illustrious examples, and give it all proper support and assistance. Indeed it is, perhaps, an object of too great importance to be trusted with any set of proprietors, and proper only to be in the hands of Government itself.

I shall conclude with these beautiful lines of Mr. Pope ;

Bid harbours open, public ways extend ;  
Bid temples worthier of the God ascend ;  
Bid the broad arch the dangerous flood contain,  
The mole projected break the roaring main :  
Back to his bounds their subject sea command,  
And roll obedient rivers through the land.  
These honours, peace to happy Britain brings ;  
*These are imperial works, and worthy kings.*

And I have the honour to be, &c.

Edinburgh,  
20th May, 1777.