A

# LETTER

TO

## WILLIAM PULTENEY, Esq;

On the subject of the Forth and Clyde Navigation.

From a Proprietor.

SIR,

HAving, in a long and extensive course of trade, had occasion to know much of the coasting and river navigation of this island;—having been a member of the committee of boroughs who recommended the Hewk entry for the Canal; and having had occasion personally to think of and know much about this navigation from its first beginning;—I have judged proper to offer my sentiments to the public upon the present dispute about the entries, prompted thereto only by a hearty and disinterested desire to promote the good of this national undertaking. I chuse to address this letter to you, in the firm persuasion, that you sincerely wish to promote such entries and such a navigation as will be most useful to the trade of the kingdom in general.

I have always considered this navigation, if properly executed, as a work that regarded Great Britain and Ireland in general much more than the country and places immediately adjoining to the track of it; and that it would rather be of use to the next and succeeding generations than to the present. I have never doubted but government would, upon a proper application, give an aid to this national work, as well for lowering of the toll, as for the execution of it otherwise, in the most beneficial way for the public; and in my humble opinion it will be found very difficult, perhaps impracticable, ever materially to alter this Canal after it is once finished.

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The great object, therefore, I think, is to have it executed in ſuch a manner at firſt as bids faireſt to promote the general commerce and improvements of the kingdom in after times, and not to deviate from or hurt this great view, by too much precipitancy, or even œconomy, in the execution, upon the plauſible pretence or intention of accommodating, either in point of time or ſituation, any particular places or temporary eſtabliſhments lying in or near the track of it. Such pretences are almoſt always founded on private intereſt, and have ruined many of our public works. At the ſame time, provided the navigation is executed in a proper manner, the ſooner it can be done, it is without all doubt the better.

It is known, that the ſcheme of this Canal was firſt ſet on foot by the Honourable Board of Truſtees for Fiſheries, Manufactures, and Improvements, who employed Mr Smeaton, the ableſt engineer in the kingdom, to make a ſurvey of it in the year 1763; and it was then imagined, and I believe with reaſon, that it was to have been made a free navigation, at the public expence, by an aid out of the forfeited eſtates.

Some ſpirited gentlemen, reſiding at Carron and in Glaſgow, ſeeing no immediate proſpect of an execution in this manner, and judging that it might be a profitable adventure to have a lighter-navigation between thoſe two places, brought a bill into parliament for that purpoſe in winter 1766; which, by the almoſt united applications and exertion of the trade and counties of Scotland, with the convention of royal boroughs at their head, was thrown out; and this paved the way for the preſent national undertaking.

It is neceſſary to mention here, that there are two ſeparate eſtabliſhments or companies on the river Carron:—One, of a large iron manufacture, fixed near Stenhouſe, which I think is productive of the greateſt advantages to this country. The proprietors deſerve much from the public for the eſtabliſhment of this noble work; and, in my humble opinion, are intitled to every kind of aſſiſtance and encouragement for promoting it that the country can give, not inconſiſtent with the rights of individuals, or a greater public good.—There is another eſtabliſhment, of a later ſtanding, upon that river, about a mile lower down, called the *Carron-wharf company*, whoſe chief buſineſs ſeems to be, the employing of ſhipping for tranſporting goods to or from this country



try with other parts of the iſland, chiefly London; and in the lodging, receiving, and forwarding of goods in the Carron, for other people, as wharfingers. Some of the partners of the iron-manufacture are engaged in this company, which makes them generally believed to be the ſame, though, according to my information, ſeveral of the iron-company partners are not concerned in the wharf-company; and other gentlemen not concerned in the iron-manufacture at all, are adventurers in the wharf-company. This laſt particular, however, I do not aſſert as a fact; nor is it material in the queſtion, though all the partners were joined in both adventures.

I do not mean to blame this ſhipping-company for their undertaking; on the contrary, I wiſh all men of ſpirit a proper return of advantage from every lawful adventure. Neither do I regard the many and notorious complaints againſt them by their neighbours in the ſame trade, at Carron, Borrowſtounneſs, and Leith, who alledge, that they want to monopolize the ſea-carriages with the places above mentioned, as well as the lodging, ſhipping, and forwarding of goods at Carron: for theſe things are often alledged with little foundation, or at leaſt are generally much exaggerated by rivals in the ſame buſineſs.——This much, however, I will ſay, that this wharf or ſhipping company, from the nature of the buſineſs above recited, are in no degree intitled to the ſame favour or attention from the public as the Carron iron-company are. For they teach us nothing but what we knew before. They perform not, according to my information, the buſineſs materially in any better manner than what it was formerly, or is now done by others; and if they have profit, it muſt chiefly ariſe from a decreaſe in the buſineſs of others who deal in the ſame branches. Further, I have been informed by people of very good underſtanding, and who had opportunities of knowing the fact, though I mean not to aſſert it, that the eſtabliſhment of this wharf-company has rather obſtructed, than promoted, the proſperity of the above noble, and, as to Scotland, I may ſay, national iron-manufacture.

The proprietors, however, of this wharf-company were undoubtedly the projectors of the lighter-canal above mentioned, in which I think they had merit: but they muſt be blamed for the too long and obſtinate adherence with which they purſued their plan, contrary to the united voice of this part of the kingdom; becauſe a ſtruggle in that ſituation was indecent; and it alſo

ſo occaſioned the laying out of L. 2000 unneceſſarily by the preſent proprietors of the Canal, and the convention of boroughs.

There is no doubt that they expected great advantage in their trade of the tranſportation and lodging of goods above mentioned, by having the Canal only fit for lighters, and the Forth entry and harbour for it upon ground which they had lately acquired adjacent to their Carron-wharf quays and warehouſes; and, blinded as it would ſeem by the proſpect of this gain, they ſupported their ſmall-canal ſcheme, in print and otherwiſe, by arguments the moſt ſtrange and inconſiſtent.

Sometimes they alledged, That the charge of reſhipping and lodging of goods in Carron was but one half of what it really coſt the owners: That nine tenths of the goods paſſing between the two ſeas would go to or come from the city of Glaſgow: That that city, and the Carron manufactures, were more intereſted than all the reſt of the world in the navigation between the two ſeas: That the city and county of Edinburgh had no more concern therein, than if it had been a turnpike-road in the ſhire of Ayr: That the moſt cheap and frugal method of carrying goods between the two ſeas, would be by lighters of 9½ feet broad, 36 feet long, and drawing 3½ feet water, as they would not require a crew, ſails, or rigging; and in other papers, that thoſe very lighters, without the above neceſſaries, would carry the goods alſo to any of the neighbouring ports in the two friths, *being juſt as fit to navigate in them as larger veſſels:* That getting aid out of the forfeited eſtates, to make the navigation any deeper than would ſerve their lighters, or to lower the toll under 2 d. a tun *per* mile, would be a proſtitution of public money. Sometimes, in order to obtain the paſſing of their ſmall-canal bill, they aſſerted boldly, and I think proved before the committee of the Houſe of Commons, that water could be collected ſufficient in the track, both for the little and large Canals. When that argument would not prevail, in a ſhort time thereafter, with a view to prevent a ſubſcription filling for the preſent navigation, they aſſerted as boldly, that there was not ſufficient water in the track for a Canal of 5 feet deep alone.—They maintained alſo in print, that the ſubſcribers would have more damages to pay for the water taken from the mills on Kelvin and Carron, than the amount of the toll they would draw;—that a navigation would probably never be executed by the ſubſcribers; that if ever they begun the work, it could not be before May



May 1770; and that they never would make above 2 *per cent.* of their money, *&c.* ——I ſhall leave theſe arguments in general to ſpeak for themſelves, and ſhall only take notice of one of them, to wit, the aſſertion, *That Glaſgow and the Carron manufacturers have more intereſt in the navigation between the two ſeas, than all the reſt of the world.* And my only reaſon for taking notice of this is, becauſe I think the city of Edinburgh and Leith do not attend ſufficiently to their intereſt in the Canal.

I have had occaſion to know and obſerve much of the coaſting-trade of this kingdom for above twenty years back; and from this, though I cannot anſwer for what changes may happen afterwards in trade, I do believe, that Edinburgh, and its port of Leith, will alone bring or ſend a greater quantity of tunnage clear through the Canal, if it is properly executed, than Glaſgow and the Carron manufacturers put together. The reaſon is obvious; becauſe they have hitherto been in the chief poſſeſſion of the trade in the bulky articles of corn, wood, ſlates, ſalt, kelp, *&c.* which, where there are no coals or lime, generally make up nine tenths of any navigation.

Theſe gentlemen having been fruſtrated, however, in obtaining the ſmall Canal, which would have been in effect a monopoly to the partners at Glaſgow and themſelves at Carron, by forcing every thing that paſſed to be lightered or lodged, and having been diſappointed in their views of ſtopping a deeper navigation, had lain for ſome time quiet.

But ſome differences in opinion had unfortunately ariſen among the proprietors of the preſent navigation. Many of them were not for the depth being reſtricted to 7 feet in the act of parliament, and they were for making an application for public aid out of the forfeited eſtates, according to an original article of their ſubſcription, in order to lower the toll to 1 d. a tun, and otherwiſe to improve the Canal. The fixing the firſt article, a delay of the application for public aid, and ſome other queſtions unneceſſary to be mentioned, had been carried by a majority of the general meetings againſt theſe proprietors, and, as they thought, improperly and without due conſideration, which occaſioned great diſcontents.

* *Vide* Edinburgh news-papers in March and April 1767, and two tracts publiſhed by them at London, during the dependence of this bill, intitled, *Conſiderations on the propoſed Canal,* and *Thoughts on the propoſed navigation between Clyde and Carron.*

The Carron-wharf company had alſo met with delays, perhaps unreaſonable, in regard to a ſide cut with the Canal, which they and the iron-company wanted this laſt ſummer. Upon this they have taken the preſent favourable opportunity of the diſcontents among many of the well-meaning proprietors, and have raiſed a ſtrange outcry about the places of entry, eſpecially that upon the Forth, with a view, if poſſible, to recover part of an old loſt game.

With this deſign, in the morning of the day of the laſt general meeting, at Edinburgh, on the 1ſt current, they and ſeveral of their friends had ſhares in the navigation transferred to them, in order to give a more plauſible pretence and better opportunity of ſupporting their plan at the meeting.

Having failed, however, in their attempt there, they thought proper to publiſh a moſt indecent as well as erroneous account of that meeting in the news-papers, reflecting on the majority, for no other reaſon, but that they did not think proper to ſuſpend or alter their preſent operations immediately, and did not chuſe to elect one of theſe gentlemens partners, who had taken a ſhare in the navigation but that morning, to be a committee-man; becauſe, though otherwiſe well qualified, yet there was great reaſon to ſuſpect he would, in the preſent ſituation of matters, embroil the navigation-company with their chief engineer, and perhaps be the occaſion of his throwing up the buſineſs entirely.

In this queſtion they drag in alſo the reſpectable name of the Carron iron-company to their aid, though I expect to ſhow that this company has no concern in the matter of the entry; and that the whole drift of the affair is, by making the places of entry from both friths in ſhallow water, to throw a new difficulty in the way of any after extenſion of the depth of the Canal above 7 feet, which they ſeem ſo much to dread, and to force the proprietors to make the Forth harbour and entry upon ground belonging to ſome of the wharf-partners, for their private benefit, however contrary to that of the public.

They ſupport the preſent cauſe in general, by arguments ſimilar, and almoſt as inconſiſtent as thoſe they uſed for the lighter-navigation. When they wanted to prevent the Borrowſtounneſs people from joining their lighter-canal by a branch in the year 1767, they then maintained, that ſuch a branch was unneceſſary for any public good, and that they apprehended the deſign of it was, *to prevent the improving of the river Carron*; with which, to common underſtandings, it ſeemed to have no concern. In like manner,



manner, they have now aſſerted in all the public papers, *that by the Canal's entering near the mouth of Carron, it is determined to block up the navigation of that river, to put an eternal bar to the improvement of it independent of the Canal, and to attempt the ruin thereby of the iron-manufacture, which gives bread to above* 4000 *ſouls*. Theſe are ſtrange and extravagant aſſertions. If it is intended to prejudice the navigation of that river from the views above mentioned, and which muſt at ſame time hurt ſuch a number of other ſeparate proprietors, traders, &c. thereon, I ſcruple not to pronounce ſuch intention, where-ever it may or has been harboured, to be moſt deteſtable. But I verily believe no ſuch intention does, or ever did, exiſt. The truth of the matter is, that the river-navigation neither can nor will be hurt by the Canal; it muſt, on the contrary, receive benefit by the conſtant attention that muſt and will be paid to the preſerving of the bar, and the whole outer entry, by the more regular eſtabliſhment of beacons, buoys, and pilots, and by ſeveral other advantages which I forbear to mention.

The channel of the river at, and all below Grange-burn mouth, is wide and capacious, which appears clearly by the plans, and their own deſcriptions of it; ſo that there is little or no danger of veſſels being ever interrupted there. But further, I am inclined to hope, the company of proprietors will, on due conſideration, find it neceſſary and expedient, for reaſons to be after mentioned, to make a large and capacious harbour within land, on the Hewk farm, oppoſite to the ſea-reach, in which the veſſels may lie out of the channel, and where an entry to the firſt locks of the Canal may be made, quite out of the reach of any danger by a high ſea from the north-eaſt. This would ſuperſede the neceſſity of an entry at Grange burn, and leave the lower channels entirely open to the veſſels trading up the river.

Should the certainty of this be objected to, or that there may be danger of interruption even oppoſite to the Hewk mouth of the Canal, it is certain, that the company of proprietors, if the entry is high up the river, muſt and will have the ſame powers there to interrupt the navigation, as they have in the lower parts of the river; and I appeal to any perſon of knowledge in ſuch matters, if this does not furniſh an unanſwerable argument on the part of the Carron iron-company againſt the entry being made high up, at Abbotſhaugh: *for if there be danger, as they have aſſerted above, and alſo in their application to the Canal company, of the veſſels being blocked*

*blocked up or interrupted in the wide channel below, there muſt be ten times that riſk in the long narrow channel of the river immediately below Carron-ſhore, where veſſels can ſcarcely be winded at preſent; and in the ſtill narrower cuts made and intended to be made in the river further down; in ſome of which, as I am informed, if a ſingle veſſel happens but to take the ground, the whole navigation up and down is ſtopped, until ſhe is lightened and got off.*

That this furniſhes alſo an unanſwerable argument to the proprietors and the public againſt carrying the entry of the Canal higher up the river, will be taken notice of afterwards.

The preſent navigation of the Carron is a pretty convenient one for the manufactures. Their harbour of Carron-ſhore is within a mile of the works, and the ground ſuch as to admit of a waggon-road, which they uſe for goods landed or ſhipped. Mr Golborne, the engineer, has further ſaid, and they have aſſerted it themſelves, that a depth of eight or ten feet water can, if they chuſe it, be carried up to the works at a very ſmall expence, ſo as to bring veſſels from 60 to 140 tuns, according to their conſtruction, up to the forges.

The proprietors again of the Canal, are obliged to, and will give them a branch from the neareſt part of it to the works, or to join the river-navigation where it may be found moſt convenient.——What, in the name of wonder, would any manufacturing company deſire more than ſuch a water-communication from their very forges to the eaſt and weſt ſeas? There is not, nor can there be one ſo convenient in Great Britain; and every good man ſhould be happy that this valuable, and as to us national, manufacture can be ſo uncommonly well accommodated.

Further, I think it probable alſo, that by uſing the other heritors on the river with diſcretion and civility, which they are certainly intitled to, allowance may be afterwards obtained to cut the lower loops of the river, in ſo far as it may not be prejudicial to the intereſt of the Canal, or to the water on the bar, and thereby to gain ſome greater depth, and a ſhorter navigation, for the accommodation of the upper part of the river.——From what has been above ſaid, I think it muſt appear as clear as ſunſhine, that the Carron-company, as iron-manufacturers, can have no intereſt in the place of entry being high up the river: on the contrary, it muſt evidently be hurtful to them; becauſe the river-navigation would certainly be leſs eaſy, and more interrupted,



rupted, than it is at preſent, by ſuch a great additional number of veſſels as would paſs to and from the canal in a narrow channel.

The *Gentlemen* have indeed ſaid, in their application to the laſt general canal meeting, held the 1ſt current, "That if maſters "of veſſels ſhould be ill-deſigning or ill-tempered men, they "may, in the channels oppoſite to the two lower entries, under "the ſanction of the act, with little trouble, and with tolerable "pretences, entirely block up the communication between their "works and the ſea."——Perhaps they will alſo ſay, *That if the place of entry is only changed, ſo as to be upon their ground, that the nature of theſe rough ſeamen will alſo be changed; and that no tolerable pretences will, in a much longer and narrower channel, be found then, under the ſanction of the act, for interrupting the navigation.* To which I am not able to make any anſwer.

The entry at the Hewk farm was, if I remember right, firſt mentioned at London, in ſpring 1767, by a worthy proprietor in the navigation at that time, repreſentative in parliament for the county of Clackmannan; and, as he ſaid, upon the ſuggeſtion of ſome ſhipmaſters who were perfectly acquainted with the Forth and Carron navigation. I cannot ſay with certainty, but am inclined to think, that none of them at that time knew upon whoſe ground the entry would be.

An entry high up the narrow and crooked river Carron was one of the great objections to the ſmall canal by perſons of knowledge in trade; and Borrowſtounneſs, on account of its deep and convenient harbour, had been propoſed, both at London and Edinburgh, as a preferable place for an entry before the one at the Hewk was ſuggeſted.——The noblemen and gentlemen ſubſcribers, who had ſo generouſly engaged in this undertaking at the beginning, acted the moſt fair and proper part, in regard to theſe entries, that could be thought on.—They could not be ſuppoſed to be proper judges themſelves.—Mr Smeaton alſo intimated at London, that he could not ſtay above eight or ten days at moſt, when he was to come down and ſurvey the track here laſt year. The fixing upon proper places for entries, ſo as beſt to accommodate the trade of the country, was not an engineer's buſineſs, but proper only to be determined by expert merchants and mariners, and was a matter which required time and deliberation. If it had been even left entirely to Mr Smeaton, he might have



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ſpent the whole time he had to ſpare for his ſurvey, before he could have got ſuch proper information as would have enabled him to have fixed on them.

The annual committee of the Royal Boroughs, and the Board of Truſtees for Fiſheries, Manufactures, and Improvements, had taken a great ſhare in the buſineſs of this navigation, and were moſt likely to give proper and impartial advice as to the entries. The ſubſcribers, therefore, ſome months before Mr Smeaton came down, very naturally applied to them, deſiring, that they would cauſe proper inſpection be made, and give their opinion and advice as to the fitteſt places for the entries to the Canal on both the friths, for beſt accommodating the general trade of the country. Theſe ſocieties appointed ſub-committees of the moſt intelligent, as they thought, of their number; who, aſſiſted by an engineer, ſurveyor, and ſome ſhipmaſters, examined the Forth all the way from Borrowſtounneſs to Carron mouth, and from thence to Carron-ſhore; and the Clyde from Glaſgow to Dumbarton; and after all the information they could get from merchants, ſhipmaſters, and pilots, on both ſides, they unanimouſly agreed in opinion, that ſomewhere on the north-eaſt ſide of a farm called the *Hewk*, at the mouth of Carron, ſuch as Mr Smeaton, on due conſideration, might determine, would be the moſt proper place for the entry from the Forth; and that the entry on Clyde ſhould not be higher up than Dalmuir burn.

The committee of Boroughs reported this opinion to the general convention in July 1767; who again recommitted this affair to a number of the repreſentatives of the greateſt trading towns in Scotland. Amongſt theſe I find by the minutes the members for the reſpectable towns of Edinburgh, Glaſgow, Aberdeen, Perth, Dundee, Montroſe, Stirling, Dumfries, &c.; and they unanimouſly adviſed to approve of the committee's report. This the convention did accordingly, and recommended thoſe places of entry to the general meeting of ſubſcribers; and they were approved of by Mr Smeaton when he came down.

The proprietors no doubt were the only perſons to determine upon the places of entry for their own Canal; but if any ſociety of men have a title to give advice, whether aſked to do ſo or not, in a matter of this national and commercial importance, it is ſurely the General Convention of Boroughs, whoſe conſtituents pay one third of the land-tax of Scotland, and have unqueſtionably the



the greateſt and moſt permanent intereſt in the navigation. By their occupation alſo as traders, they ought to be the beſt judges of a matter of this ſort; and they are by the law of this land, authoriſed and appointed to watch over its commercial intereſts. Further, it is believed, that no great commercial plan regarding this country has been ever fully concerted, and put into execution, without their advice and concurrence; and I have not the leaſt doubt, but they would have petitioned in parliament againſt any entry high up the river Carron, if that had been propoſed in the Canal-bill.

But, ſay the wharf-company, the committee were biaſſed in their judgement, in regard to the entry at the Hewk farm, to favour the intereſt of a certain great land-proprietor in that neighbourhood, who had unfortunately ſupported the undertaking of this canal from the beginning, and had the chief hand in diſappointing them of their lighter-navigation. I believe nothing is more devoid of truth, than that this land-proprietor ever meddled with the committee leſs or more, by himſelf or any other perſon, in regard to the place of entry; and I am ſatisfied, that they would not have ſigned a report which they did not approve of in their own minds, to favour any great man whatever, if he had interfered in it. The three principal acting members in this committee, and who went the whole circuit to Glaſgow and Dumbarton, were, I believe, without diſparagement to any other gentleman, as good judges of the matter in hand, as any equal number of perſons that could have been found in Scotland. I believe no committee ever had a more earneſt and diſintereſted, I may ſay enthuſiaſtic deſire, to obtain the moſt beneficial entries for the public; and I am ſatisfied, they gave a moſt faithful report to the beſt of their judgement, and that they would have fixed upon the ſame entries in both the friths, if the lands had belonged to a perſon living at the Cape of Good Hope.

If they had been diſpoſed to be partial in favour of the landholder above mentioned, they ſurely would have pitched upon a place further weſt on the Hewk farm, or higher up the river, where the land was entirely his for perhaps a mile round, and not upon the north-eaſt part of the farm, which marches immediately with two other proprietors, feuers I believe of the Duke of Hamilton, and whoſe lands come within about 300 yards of the place fixed on for an entry and harbour. Some of this committee, though they profeſs the higheſt regard for the Honourable proprietor

proprietor above mentioned, did, before this commodious one at the Hewk was known, recommend in print an entry at Borrowſtounneſs, preferable to any in Carron, which would have been greatly againſt his and another of his friends intereſt; and they have not ſcrupled to differ from him ſince upon other matters relating to this navigation, wherein they thought the general intereſt of the country was concerned.

It conſiſts alſo with my knowledge, that Mr Gaſcoigne, one of the Carron wharf partners, was conſulted and adviſed with on the ſpot about the Carron navigation and entry, by this committee; and that a Noble Lord, who, to his honour, is a great patron of the Carron manufactures, and I believe extremely deſirous of obtaining the beſt navigation for the public, was preſſed and expected by the committee to give them the benefit of his advice upon the ſpot about the Carron entry, becauſe of his knowledge in commercial matters, although he ſeems now inclined to have it carried higher up the river.

It is alſo well known, that Mr Gaſcoigne did attend, and inform Mr Smeaton when he came to inſpect the river Carron, and determine upon the place of entry; and ſo confident were the Convention's committee, that Mr Smeaton himſelf would, upon inſpection, approve of the entry at the Hewk farm, that not one of them came near him, until he had finiſhed his whole ſurvey and inſpection of the Carron mouth, and the track for the Canal four miles weſtward; though afterwards ſome of them attended him through the whole courſe to Glaſgow and Dumbarton.

But, ſay the Carron people further, we have had down three different engineers, Meſſ. Brindley, Yeoman, and Golborne; who have unanimouſly given their opinion, that the entry would be more proper at the Carron wharf or Carron works. To this I anſwer, That engineers in general are no judges of a matter of this ſort. Mr Smeaton, who had been frequently in this country, and for months together at a time, conſidered himſelf as no judge in theſe matters; as appears by his laſt review, but particularly by his ſecond report, p. 18. in the following words. "Conveniencies of trade is a matter that I never undertake to "judge of: I am therefore happy that the places of entry have "been pointed out by a committee of gentlemen appointed to make "due inquiries thereupon."

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The engineers above mentioned, however knowing, as I doubt not they are, in their proper profeſſion, muſt ſurely be ſtill worſe judges in this matter than he. They were but a few days each in the country: they had no opportunity of knowing its trade, nor ſo much as the kind of goods meant to be carried between the ſeas, nor any information but from the intereſted ſide. Had the caſe been otherwiſe, and had there been ſufficient time for information, and to have conſidered of the matter properly, I have not any doubt but they would have been all of Mr Smeaton's opinion as to the entries.——If it was neceſſary, it were eaſy to ſhow, from ſome of their reports in print, that they knew nothing of trade, nor what would beſt accommodate it. I mean not this, however, as any reflection on them, having no notion that an engineer is obliged to know the buſineſs of a merchant or mariner.

Not contented ſtill with this, the Carron people, in conformity to their conduct with regard to the ſmall canal, make uſe of another very uncommon argument. They muſt, before the 2d of November, have been in poſſeſſion, or have known the contents of Mr Smeaton's review of the three above-mentioned engineers reports, ſigned by himſelf; wherein he adheres to the entries at the Hewk and Dalmuir burn-foot; and aſſerts, that if he had been to make a canal fit for veſſels of $4\frac{1}{2}$ feet draught only, according to the firſt plan given in to the Board of Truſtees, he would certainly have fixed the entry below all the Carron cuts, on account of the narrowneſs of the river higher up; yet they put a paper into the Edinburgh Advertiſer of the 8th current, aſſerting, that the entry at the Hewk was forced upon Mr Smeaton contrary to his own ſound judgement and opinion; and that the advice given to him was *moſt falſe, partial, and erroneous.*——I forbear to make any comment upon this new and ſtrange way of argumentation; and ſhall leave it for others to animadvert upon the impropriety of treating the advice of the General Convention of Boroughs, and Board of Truſtees, with ſuch epithets. I ſhall only obſerve, that when people are deſtitute of argument, they naturally have recourſe to bad language; and that the preſent affair is a ſtrong inſtance to what ſtrange lengths and inconſiſtencies ſelf-intereſt and paſſion will drive ſenſible men.

It may be thought, that this entry, ſupported by the advice of ſuch reſpectable ſocieties, the concurrence of Mr Smeaton, and



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the approbation of ſo many general meetings, reſts on the moſt ſolid ground.—It ſeems oppoſed only by the opinion of a few gentlemen, moſt reſpectable indeed as manufacturers, but who cannot be ſuppoſed to have any proper knowledge of the general trade of this part of the kingdom; and are not, as I am informed, engaged in it otherwiſe than as a company for the tranſportation of goods, and in the lodging and forwarding of them for others, at Carron-wharf; which renders them obviouſly partial and intereſted in this queſtion, ſuppoſing their knowledge and judgement therein were unexceptionable.—I am not ſure whether they even pay a ſingle ſhilling of the land-tax of this country, as traders: and with all regard to them as private gentlemen, I cannot ſee any conſideration upon which they are intitled to determine for the public, or the proprietors, in this matter. Even the attempt, to ſay nothing of the time and manner of managing it, ſeems to me indecent.

I propoſe however to make a compariſon between the two entries, and to ſhow ſome of the reaſons which might have induced the committee to prefer that at the mouth of the river.—In treating of this ſubject, I lay down two principles, in which I think every perſon well acquainted with trade will join me. Firſt, *That as the great time which muſt unavoidably be ſpent in paſſing ſo many locks in the Canal, is one of the capital inconveniencies of the whole ſcheme; therefore, and as diſpatch is the life and ſoul of all naval commerce, every means, natural as well as artificial, ſhould be uſed to render the acceſſes to the different entries as eaſy, expeditious, and certain as poſſible.* Secondly, Although ſome people may on firſt view, or from inexperience in trade, believe it ſufficient, if the depth of the water in the harbour, at each of the entries, be equal to, or a little more than that of the Canal; yet I maintain, *That though the Canal was ever ſo ſhallow, and only fit for ſmall lighters, that each harbour cannot be of too great depth for the benefit of the public, ſuppoſing it were to admit veſſels from 500 to 1000 tuns. I hold it alſo abſolutely neceſſary that the harbour ſhould be large and capacious, and, if poſſible, out of the reach of the ſtream of the two rivers, with proper quays, warehouſes, and yards, immediately adjoining to it, where the largeſt veſſels, ſuch as are not fit for the Canal, may load and unload their cargoes, with the leaſt delay, expence, or other inconvenience.*—That ſuch large veſſels as cannot paſs the Canal, eſpecially in the frith of Forth, will come up to load coals, tobaccos, ſugars, &c. and to diſcharge wood,



wood, corn, flax, iron, and ſuch other articles, into warehouſes, yards, &c. I cannot doubt, being perſuaded, that the harbours at the mouth of each end of the Canal, if there be ſufficient water, and other proper conveniencies in them, will naturally, *and to the great advantage of the public in after times*, become magazines where merchants and others will occaſionally lay up their goods for a time, till proper demands offer for exportation, or for conſumption, at the markets of either ſide of the iſland.

This being premiſed, I mean to ſhow, That *with a view to the intereſt of the public in general, the Hewk farm is incomparably the moſt proper place for the Forth entry to the Canal, and the harbour at the mouth of it:* That the fixing of it there will alſo be for the intereſt of the proprietors of the navigation: and, *That the entry from Clyde ought by no means to be higher up than Dalmuir burn, but rather lower down the river, for the ſake of deeper water, if circumſtances will admit of it.*

I think no man who has any proper knowledge in naval commerce, and means the good of the public, will ever, if he can avoid it, chuſe to make any harbour whatever in a river, much leſs at the diſtance of ſome miles up from the mouth. Never, therefore, would he recommend the making of a great national harbour, as this ought to be, and I hope will, two or three miles up a narrow ſhallow river, where great inconveniencies muſt daily ariſe from land-floods, tides, froſt, ice, and from ſhallows, which are conſtantly forming by the ſhifting of the beds of rivers. I have already ſaid, that there ought to be a large and capacious harbour, of as great depth of water as poſſible, with proper quays, warehouſes, &c. at each of the entries, where ſhips of the greateſt burden can come eaſily up. I maintain, that in ſailing round the whole iſland, there will ſcarcely be found a place of more deep and eaſy acceſs, or more commodious for the ſituation of a large harbour and entry to ſuch a Canal, or with a ſafer or more capacious road, or ſubſidiary harbour, for ſhipping to lie in, adjoining to it, than this very place upon the Hewk farm fixed on by Mr Smeaton.

He has ſufficiently deſcribed the inner ſtation, upon the authority of the Carron gentlemen themſelves, in the following words.

" Within the mouth of the river Carron there is a moſt capa-
" cious ſtation for ſhips of any burden, of about half a mile in
" length, having from 22 to 24 feet water in ſpring-tides, and
" from

" from 16 to 18 feet in neap-tides. The harbour of the river " Carron is capable of containing 1000 ſail of ſhips; and the " boats uſing the Canal may ſail to any one of them, whether " they be at the entrance of the Canal, (where ſhips uſing the " coaſting-trade do now come up), or at the mouth of the river " at Greenbrae, (where ſhips drawing 20 to 24 feet water, of 500 " to 600 tuns, or upwards, may lie); and this without any ex- " pence of lock-dues, &c. as the river is a free navigation."

The Hewk point in the above deſcription is reckoned the mouth of the river; and from that, eaſtward, to the intended entry of the Canal, is ſuch another ſtation, which Mr Smeaton calls the *Hewk reach*, and where he ſays, p. 18. of his review, veſſels are at ſafe moorings, and may load or unload their cargoes into one another, in the ſame manner as within the point. I will add, That the whole outer entry from the Forth, through the Holemery, where veſſels of an ordinary ſize may lie afloat at low water, is a ſafe ſtation for lying in, and moſt frequently, if there was occaſion for it, to load and unload in, out of one another. Further, that the whole open frith itſelf, from Carron-mouth to Alloa, is in general very ſafe anchoring ground, and in ſome parts of the world would be reckoned a harbour. The whole bottom of the Carron-mouth and the frith of Forth upwards, is a ſoft mud or clay, where, if a veſſel was to touch the ground, ſhe can receive no damage; and I am well informed, that there never is any thing to be called a ſea ſo high up the frith, to incommode, far leſs to endanger, a veſſel at anchor. Further, according to the teſtimony of ſhipmaſters, pilots, and all the engineers who have touched on this ſubject, the entry outwards from the Holemery, or harbour of the Canal, is ſo wide and capacious, that veſſels can turn out and in with the open frith, at all times when they can carry ſail; and there is no interruption there from land-floods or ice.—I ſubmit it then to people knowing in trade and navigation, where any ſtation more convenient, or more inviting for the ſituation of a large harbour, is to be found.

The great object of this navigation is, as I take it, to facilitate the conveyance of goods, particularly of the bulky coarſe kind, from the places of growth to that of conſumption or manufacture, with the greateſt expedition and ſafety, and with the leaſt expence. The harbour which will moſt promote this great object is ſurely the one to be choſen; and this can never be without proper



proper accommodation in it.——That ſhips can load, and diſcharge in and out of one another, or by lighters, in a ſtream or harbour, is obvious; and that this method is practiſed in many places, particularly at London, becauſe they cannot do better, is no doubt true. It is the common fate of ſuch places which have been very early in trade, and at times when the proper conveniencies for carrying it on were not known, or attended to; but ſurely, if we go to Liverpool, Yarmouth, or any other of the new-made harbours, we will not find that practice. London is, to be ſure, a great example to quote: but the ſtreets of the old town are extremely narrow and inconvenient; ſurely they will not be made a rule for any new erections of that kind with us; and as little ought their old harbour to be ſo. I maintain, there is no place where the buſineſs of ſhipping and landing goods in general is done in a more improper, tedious, and expenſive manner, than at London, by loading and diſcharging in the ſtream, by lighters, which is done from neceſſity only, and for want of proper quays. The loſs, by this manner of operation, to the proprietors, in a place of ſuch immenſe trade, by delay, waſte, and expence, is inconceivable; and I cannot doubt, if it was not for the difficulty, by ſo many houſes being built near to the river, that ſome hundred thouſand pounds would be moſt properly and profitably employed in making proper quays out of the reach of the ſtream, with warehouſes adjoining to them, for the better accommodation of trade.

Even at Leith, where the trade is but a mite in compariſon with the other, if the goods were all to be loaded or diſcharged by lighters, I am inclined to think, it would one way or another coſt the owners L. 4 or 5000 a-year at leaſt more than it does at preſent. The ſhipping of goods even from one veſſel to another, cannot be done near ſo conveniently in ſuch ſtations as thoſe in the Carron, as if the veſſels lay near to quays: and if the goods are to be landed to or ſhipped from warehouſes, by lighters, into or out of veſſels, lying in a ſtream, it is inconceivable to any but thoſe who have had much experience in ſuch matters, what delay, waſte, and expence, this operation is attended with upon moſt goods, but eſpecially thoſe of the coarſe bulky kind.

I will not enter into particulars, but could eaſily ſhow, that in many places, and upon ſeveral kinds of goods, it will amount to 10, 20, nay ſometimes 50 *per cent.* of their prime coſt; and that in general

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the expence will be greater to the owner, than the freight of ſuch goods once fairly ſhipped, would be for fifty or an hundred miles diſtance.

I hope I ſhall be excuſed for dwelling ſo long on this point, as the general intereſt is ſo much concerned in it; and from what is above ſaid, I hope, that in the planning of a great national harbour for the benefit of poſterity, we ſhall never think of doing it without proper quays, warehouſes, and yards immediately adjoining. There is no place perhaps to be found where this can be done with leſs expence, or more ſafety and convenience, than on the Hewk farm, the ground being quite flat all round, and proper for a harbour, wet and dry docks, with the Grange-burn at hand for a baſon, to ſcour and keep the harbour clean, in caſe that ſhould be needful.—There cannot be any ſea in it to do hurt in the hardeſt gales of wind, after the erection of a head or jettee of wood upon the eaſt ſide: this we know by the experience of the harbour of Borrowſtounneſs, which is four or five miles further down, and ſituated on a kind of promontory, where the frith is broader; whereas the Hewk is ſituated in a bay.

The ground alſo is much lower rented than up near Carron-works; and it is not to be doubted, but the proprietor will be willing to give ten or twelve acres to the company at a moderate rate, for the purpoſe of a harbour, &c.; or that he will erect ſuch harbour and other accommodations at his own expence, to their ſatisfaction, and under proper reſtrictions as to dues.—That a very moderate tax will be ſufficient to anſwer the expence of this harbour, and that the conveniencies to trade will greatly overbalance ſuch tax, I cannot in the leaſt doubt. At ſame time, ſuch perſons as chuſe to make uſe of the outer or ſubſidiary harbour to load or diſcharge in, will have it in their choice to do ſo.—It is almoſt unneceſſary to mention again, that the expence of the locks and other works intended for an entry at the Grange-burn, and the aqueduct-bridge over it, may, if this takes place, be entirely ſaved; and this ſaving will go far to defray the expence of the harbour; the Carron people will alſo be rid of their fears of the channel's being blocked up.——This harbour will be acceſſible at all times of the tide to the ſmall veſſels; and the channel, with the Forth, is ſo wide, that all veſſels can turn out and in with contrary winds; and it will very ſeldom, if ever, be blocked up with froſt in winter.——Veſſels from all the different ports in the frith, between



between Leith and Alloa, may ſail to or from it in a few hours; and it will, as I believe, ſuperſede the neceſſity and great expence of a ſide-canal to join the main one from Borrowſtounneſs, as it will be ſo near and acceſſible to that place.——The largeſt veſſels that can uſe the Canal, according to my information, will have water to go out and in to the locks in it, for about twenty-two hours out of twenty-four, at a medium, all the year round; which will be an uncommonly great advantage to navigation.

By the direction of the Canal from oppoſite to Raysford on to Bainsford, it will accommodate a tract of country which has at preſent a very inconvenient communication with the river Carron; and it will be convenient for the village of Lauriſton, and particularly ſo to the town of Falkirk, as the navigation will reach within about half a mile of it. This place I take to be ſituated extremely well for various branches of commerce, which will be found when any perſon ſettled there applies to it with the proper requiſites. It is now in an increaſing ſtate: the buildings will, I doubt not, extend in a few years to Bainsford; and perhaps the extra toll ariſing from it alone may, in a ſhort time, be equal to the expence of the Canal's coming directly from the Hewk to Bainsford, inſtead of being carried only from Abbotſhaugh to that place.—I doubt not alſo but a great deal of lime, for the conſumption of the immediate country adjoining, will come up through this tract; and that coals will in time be ſhipped in quantities, perhaps as large as they are now on the Carron, from the grounds on the ſouth of the Canal, to the great advantage of the public, as well as of the navigation.

The entry and harbour of the Hewk, with the track of the Canal to Bainsford, being now deſcribed, I ſhall proceed to ſhow what the gentlemen would give us in place of it higher up the river Carron; and having been at pains to inform myſelf carefully about that navigation, I will give a ſhort deſcription of it.——In the outſet, I muſt beg leave to differ from them in their averment, that there was but little commerce paſſing on the river Carron before the ſettlement of the Carron company there in the year 1760; and that preceding that time, *the river was totally neglected.* It conſiſts with my knowledge, that there was a conſiderable commerce before this period: I mean not to ſay any thing like to what there is at preſent; but I know that very large quantities of coals were ſhipped there before that time; that conſiderable

ſiderable quantities of wood, iron, &c. were alſo imported; that the trade in corn was very large, inſomuch that a ſingle Edinburgh houſe alone had been in the practice, for a courſe of years, of diſcharging forty to ſixty cargoes of corn in the river; and that above twenty ſail of veſſels have been frequently ſeen at a time at the ſingle creek or harbour of Carron-ſhore, which in Scotland cannot be reckoned an inconſiderable trade.

Neither was the river, as they ſay, totally neglected; for there were quays, warehouſes, and other conveniencies for loading and unloading at Saltpow and Carron-ſhore before that time. The cut alſo upon the ſouth ſide of the river, marked on the different plans, which has ſhortened the navigation more than the other two that have been done ſince, was made before the Carron company exiſted. It is not however meant here to reflect upon the endeavours uſed by them ſince for improving the river, by cutting, as they are truly commendable and praiſeworthy.

When the committee were there in June 1767, there was 6½ feet water upon the ſhallows below Carron-ſhore at neap-tides; and according to my information, there is at this hour, or at leaſt there was laſt week, and I ſuppoſe through the year, the ſame water only at ordinary neap-tides, on a ſhallow between the lowermoſt cut and Raysford, and much the ſame water only in ſome places between Carron-wharf and Carron-ſhore: ſo that the deepening of the river by means of ſuch cuts ſeems very uncertain, becauſe there is no more water now, than before the three already made were firſt begun. —— My information ſays further, That the cuts make the navigation more inconvenient for veſſels under ſail, when the wind is croſs, or when there are land-floods in the river; but much more convenient when the wind is fair, either up or down; and particularly that it gives a better opportunity of tracting veſſels: That there is but juſt room to wind a veſſel of 60 tuns in theſe cuts, and not much more all the way up to Carron-ſhore, where the veſſels are generally winded when they are light: That if a ſingle veſſel happen to take the ground in ſome of the cuts, it is neceſſary to have her lightened or unloaded, in order to be removed, otherwiſe the navigation up and down is ſtopt, of which there have been recent inſtances: That in time of great land-floods, the navigation is totally interrupted, either up or down, ſometimes for many days together: That veſſels frequently break looſe in ſuch floods, and do great damage to themſelves



ſelves and others, of both which there have been ſeveral inſtances this laſt autumn; and that theſe floods, when accompanied with ice, are moſt dangerous: That the navigation between Carron-ſhore and Holemery is often very tedious, and takes up in the going down many days, even when there is ſufficient water for the veſſels; but that in coming up, it frequently happens, that veſſels of 50 or 60 tuns are detained for eight days between theſe two places, even when they have ſufficient water over the ſhallows; and when that is not the caſe, and they have to wait for ſtream-tides, it takes up ſtill longer time unleſs they are lightened; —which is confirmed by Mr Yeoman's report, p. 19.: That the navigation of the river is, in ſevere froſts, totally blocked up; and that veſſels, in ſuch times, bound to it, are obliged to diſcharge at Greenbrae, when they can get up that length, and to have the goods ſent up by land with great expence and inconvenience, there being no warehouſes at that place: If they cannot get to Greenbrae, they muſt go to Borrowſtounneſs, Airth, and other neighbouring ports, to unload, to the great loſs of thoſe concerned. The ſituation of the above veſſels, when joined to that of others in balaſt, intending to load up the river, and of thoſe which muſt be blocked up within this and all ſuch rivers, upon the ſetting in of any ſevere froſt, muſt obviouſly appear to people of knowledge in trade, a capital inconvenience to the navigation in general. It muſt appear particularly ſo in regard to veſſels whoſe cargoes are to be diſcharged into or loaded from warehouſes at the harbour: And taking all that is already ſaid together, I might even here return to my former propoſition, *That no man of knowledge in trade will, when he has a choice, ever adviſe the fixing of any harbour, and far leſs a great national harbour, in a ſituation ſome miles up a narrow river, ſubject to ſuch a complication of inconveniencies.*

The above facts relating to the river Carron may, I think, be fully depended on, as I have them from merchants, ſhipmaſters, and pilots, who have long reſided on the ſpot, and who ſay, that they are ready to verify them, if that was needful, upon oath.

I am aware that Mr Yeoman, in his report, p. 20. in anſwer to queſtion 15. contradicts my information as to the interruption by land-floods, in the following words.—— " I apprehend that " the navigation of the river, when altered as above, will not be



" obſtructed

" obſtructed by floods, any more than it is in its preſent ſtate, " *which, from the accounts I have had from the maſters of veſſels, and* " *the principal pilot of the river, has not happened at any time within* " *their remembrance.*" Now the fact is ſo notorious, and ſo correſpondent with what happens in the navigation of every ſuch river, I believe, in Great Britain, whenever there are great land-floods, that Mr Yeoman's informers muſt, I preſume, have miſunderſtood his inquiry, or he their anſwers: and this confirms what I have already mentioned, *That the opinions of engineers ſhould only be aſked and given in matters within their own proper profeſſion.* And, with all ſubmiſſion to his and Mr Brindley's ſpeculation in his anſwer to the ſame queſtion, p. 10. *That little or no obſtruction can ariſe from floods, where there is ſo good a tide-way as I find in the river*; people who take their opinions from fact and experience will ſtill believe, that the navigation of a river, whether it is crooked or ſtraight, and even with a good tide-way, will be interrupted by great land-floods.

It is ſomething ſingular, that this queſtion was not put to Mr Golborne, who knew moſt of river-navigations, and who tells us, p. 33. of his report, " That he found *the water ran very rapidly over Raysford*; " and that the bottom was hard gravel and ſtones: That the " channel from thence to the Hewk point was very ſerpentine and " narrow, with dangerous banks on the ſides."—— *Perhaps the reaſon for not putting this queſtion to Mr Golborne might be, that the navigation was in fact quite interrupted by land-floods between the 24th and 28th of September; upon the laſt of which days he examined the river.*

I will ſubjoin ſome other obſervations by theſe engineers of the preſent ſtate of the river.—— Mr Yeoman's information, p. 19. that veſſels are obliged to wait two, three, or ten days, for the wind to ſhift to carry them up the river, has been mentioned already.— In the ſame page, in anſwer to queſtion 14. he ſays, " There is but one wind that can carry a veſſel round the Hewk " point, or even abreaſt thereof, after allowing every poſſible ad- " vantage of tide and fair weather; ariſing from the peculiarity of " the loops, and the narrowneſs of the channel, in which a veſſel " muſt go aſhore if ſhe attempts turning; and I imagine it will " be found on proper inquiry, that in a gale of wind no maſter of " a veſſel would chuſe to make the attempt." Page 34. Mr Golborne ſays, from whatever point the wind may blow, there is room



room enough to work into the mouth of the river; or, in other words, *to the Holemery or intended mouth of the Canal.* Page 35. in anſwer to queſtion 3. he ſays, *The channel of the river from the Hewk point upwards, is ſo crooked, ſhallow, and has ſuch dangerous banks on its ſide, that I am ſurpriſed how the veſſels that go to Carron-wharf eſcape unhurt.—— No veſſel of any burden can anchor there in ſafety without ſhore-faſts; conſequently veſſels going up the river would be thereby impeded: nor can I think any place deſerves the name of a harbour, where two veſſels cannot anchor abreaſt without blocking up the channel.*

Mr Brindley, p. 10. in anſwer to queſtion 14. ſays, " It now " frequently happens, that veſſels cannot make round the Hewk " point to Grangeburn at one tide, even in favourable weather; " and in blowing weather will not attempt it."

Such was the ſituation of this communication when the Convention's committee viſited the river. But, ſay the other party, Mr Golborne is to deepen and widen the river; which will remove ſome of the above inconveniencies.—— From what Mr Smeaton has ſaid in his Review, it is doubtful if allowance will ever be given to cut the lowermoſt loop, for fear of hurting the outer entry of the river, and the water on the bar.—— There may be oppoſition alſo, from various reaſons, by the adjacent heritors, to the cutting of the upper loop.—— Be that as it will, it would ſeem to me, though I pretend to no ſkill in engineering, that from the cuts already made having had ſo little or no effect in regard to deepening of the water, that thoſe to follow can ſcarcely be expected to have great effect; and they are moreover to be made in parts of the river which are pretty deep already. —I have a high opinion of Mr Golborne's abilities in this branch, from what he has done elſewhere; but people of ſkill think he has been too haſty in forming an opinion, and has undertaken far too much in regard to the river Carron.—— They ſay, that if the work is to be done by digging, and the channel widened all the way for near two miles, to ſo great a breadth and depth as would be neceſſary for the proper accommodation of ſhipping, that it would be a moſt extraordinary force upon nature, and it is to be feared attended with an expence of L. 20,000, inſtead of L. 3000.—— That the completion of it alſo, to the full extent propoſed, of 19 feet water at the quay of Carron in ſpring-tides, might perhaps be looked for with uncertainty at the diſtance of ten or twenty years hence.

Far

Far be it from me, however, to ſuggeſt any thing againſt a reaſonable and natural improvement of the river. It is a thing very deſirable by the public, as we cannot have too many good navigations, if the tax upon trade neceſſary for obtaining them do not overbalance the advantages they may bring. —— This navigation may be very uſeful to the communication between the two ſeas, when the wind and tide happen to anſwer fair up or down the river; —— when the works on the Canal parallel to it may require repairs, or when veſſels whoſe loadings are of ſmall value, and require no extraordinary diſpatch, may chuſe to take that courſe for the ſaving of a trifle of toll.

I am aware, that an improvement of the river may induce more veſſels paſſing the Canal, to take that channel, which will be ſome pecuniary loſs to the proprietors of the navigation. This, however, for my private concern therein, ſhould never induce me to oppoſe an improvement; but the hurting the bar, or outer entry of the river, or even the riſk of doing ſo, if people of ſkill think there is any riſk, is in my opinion an unanſwerable argument againſt cutting the lower loop. —— If the river could even be deepened according to Mr Golborne's plan, and the entry to the Canal were made at low water in neap-tides, at Abbotſhaugh, there muſt be the ſame number of locks between that entry and Bainsford, as between the Hewk entry and it. —— The ground alſo, as I believe, is more uneven; ſo there would be very little, perhaps no difference in expence; eſpecially as the digging of the Canal the other way is moſtly finiſhed already, and the greateſt part of the inconveniencies of the river-navigation would ſtill remain.

If the entry to the Canal is to be made upon the preſent, or ſome ſmall additional depth in the river, and at high water of neap-tides, it is obvious, that veſſels could not go out of, or come in to the Canal, for above the ſpace of an hour of each tide, perhaps not above half that time. —— I am aware, that on ſome particular occaſions of wind and tide, the paſſing by the Abbotſhaugh entry, to or from Bainsford, though it be longer than the other, might happen to be performed in leſs time; yet I ſay the navigation between this entry and Holemery, even if the river could be improved to the full extent propoſed, and much more in its preſent ſtate, will be found, for the year round on an average, to take up a ſpace of two days, either in going or coming,



ming, beſides the general loſs of a tide in entering to or from the Canal lock. —— From which it would be no great ſtretch to ſay, that this would be rendering the paſſage between the two ſeas, to all intents and purpoſes, full two days longer, if the one entry was to be ſubſtituted ſingly in place of the other: A circumſtance totally ſubverſive of diſpatch, which is the life and ſoul of naval commerce.

It were eaſy to ſhow, that upon a variety of occaſions, one veſſel ſetting out from Bainsford by the Hewk entry, might get down the frith, and reach her deſigned port, perhaps in Norway, before another veſſel ſetting out at the ſame time from Bainsford by the upper entry might reach the Holemery; and much more, *vice verſa*, that if two veſſels were lying in the Holemery together, the one by the Hewk entry might croſs between the ſeas, and reach Dublin, before the other, taking the river-paſſage, would get into the Canal at Abbotſhaugh. —— I ſpeak from much experience of the inconveniencies and delays of river-harbours, having not only had numerous loſſes and damages by them, but almoſt upon every occaſion of a land-flood, or croſs winds, having had veſſels detained from getting out of or into ſuch harbours. —— Nay, it has often happened to me, as it muſt to others in buſineſs, to have had veſſels loaded in, or bound to, river-harbours at no great diſtance from the ſea, where, with fair wind and weather, plenty of water, and no land-flood, they could neither go out nor come in for ſeveral days together, only becauſe the tides happened to be in the mornings or evenings of ſhort winter-days.

A compariſon between theſe two entries appears to me as abſurd, as if a perſon here would take it in his head to ſay, that the paſſage acroſs the frith from Kinghorn, where it can generally be done for a few hours of the tide only, was as convenient for the public as that at Queensferry, where the depth of water will admit of a paſſage at all times whatever. The caſes are pretty ſimilar.

I could add a great deal to what Mr Smeaton has ſaid of the inconveniencies of theſe gentlemen's propoſed harbour of two miles long in the river, from circumſtances out of the way of his profeſſion, and might alſo have animadverted on the very erroneous plan they have publiſhed of the river and track of the Canal; but judge it unneceſſary. —— I ſhall only obſerve at preſent, that if



the

the cuts propoſed by Mr Golborne were executed, it would, according to my information, throw two heritors lands, which are now on the river, a full quarter of a mile from it; and in that caſe, the number of heritors upon the Canal to Bainsford will be nearly the ſame as on the river to Carron-ſhore. It does not occur to me, why there ſhould be any more danger of monopoly on the banks of the Canal than on the river; for I cannot doubt, but heritors will be very glad, in either ſituation, to feu out their lands at high rents to ſuch as want to make accommodations for trade. Nay, I could even clearly ſhow, though I forbear to do it, that there would be much more danger of monopoly upon the river-courſe than upon the other.

It was already taken notice of, in the former part of this letter, that the Carron people had expreſſed great fear of their veſſels being interrupted in their paſſage up or down the river, by the Canal-veſſels filling up the channels, which are pretty wide, oppoſite to the two intended entries; and they have further told us, that the preſent trade of the river amounts to 44,500 tuns annually.—All theſe veſſels, unleſs it may be a few not worth notice, do load or unload at or above Carron-wharf, and the narrow cuts in the river; *and it is humbly ſubmitted, whether this ſingle circumſtance alone, if there was no other, does not furniſh an irreſiſtible argument to the proprietors, or at leaſt to the public, againſt an entry ſo high up the river, where the veſſels uſing the Canal would be ſo miſerably interrupted and endangered by ſo very great an additional number of ſhipping in a very narrow channel, as well near the Canal, as for two miles down the river.*

I beg leave further to notice, on the part of the Convention's committee, that when they ſet out upon their ſurvey, they were poſſeſſed of the inſtructions of the general meeting at London to Mr Smeaton to make a ſurvey and eſtimate for a Canal fit to navigate veſſels of 60 tuns burden, of the ſame conſtruction with thoſe uſed at preſent in the friths of Forth and Clyde; or, in other words, and as he himſelf took it up, of 8½ feet depth.—The ſaid committee alſo were at that time of opinion, that if ſuch a depth could be carried through as would admit veſſels drawing 9 feet water to paſs eaſily, it would be a great public advantage; and it appears from the Convention's minute relative to theſe entries, that they were of the ſame opinion.—How then could



could the committee poſſibly have recommended an entry, where there was only 6½ feet water?—Surely nothing more abſurd could ever have been conceived.—They knew nothing then of Mr Golborne's great abilities in deepening rivers; and if they had done ſo, perhaps they would not have put full faith in his deepening Carron to the extent now propoſed; to ſay nothing of the uncertainty of the other heritors on the river agreeing to this operation.

*Upon the whole circumſtances of the caſe, I am perſuaded, Sir, that you will believe, the committee could not, conſiſtently with their duty, have given any other opinion than what they did; and that being poſſeſſed, as they were, of knowledge in naval commerce themſelves, and otherwiſe fully informed, if they had recommended an entry at Abbotſhaugh, under theſe circumſtances, it muſt have been contrary to the conviction of their own minds; and they would have deſerved a moſt exemplary puniſhment.*

In regard to the account of ſavings annexed to their engineers reports, I take thoſe for the Glaſgow ſide to be totally ideal; not only as the propoſed track of the Canal is impracticable, but that I mean to ſhow afterwards, that the entry ought not to be higher than Dalmuir burn-foot.

As to the ſavings on the Forth ſide, they are erroneous in a variety of articles, which it is unneceſſary to point out, as the public has properly no concern in that queſtion: For it is obvious, that every maſter of a veſſel may uſe either the upper or lower entry as he finds moſt for his intereſt and convenience. If there was even no communication with the Canal from the upper part of the river; or if that branch was reſtricted to be uſed only for the manufactures at Carron, and the other trade in the head of that river; which, if the proprietors of the Canal had been narrow-minded, would certainly have been the caſe;—ſtill the ſavings to the public would be no more than if the gentlemen were to ſtate what the public would gain by taking a longer and worſe road, to avoid a trifling toll upon a direct and good turnpike-road.—— I might have mentioned it more properly, perhaps ſooner, but I will ſay here, that the difference of the Canal-track is not full two miles between entering at the one or at the other place, and the toll I preſume will never exceed 2 d. a tun for the whole of this difference.—— If ever the river is improved, the toll for that purpoſe

pose will probably be at least as high, nay, the very cost of pilotage from Holemery up and down the river, which no improvement can save, may be a great proportion of this so much dreaded difference of the Canal-toll.

Let it be also remembered here, that by making the entry and a proper harbour at the Hewk, the whole expence of a side-branch from Borrowstounness, which would be L. 10,000 at least, may most probably be saved to the public, in these gentlemens ideas of saving. And, in any event, the expence of about three additional miles, and perhaps two or three locks for this side-branch, which would be indispensably necessary if the entry was to be at Abbotshaugh only, in place of the Hewk, will certainly be saved; and I suppose they will allow this saving to the Borrowstounness people to be as much a saving to the public, as if it was the money of the other navigation-company.

The savings with regard to the proprietors themselves are much in the same situation. A few hundred pounds may probably finish all the cutting-work that now remains to be done between the Hewk and Bainsford. The track there is so favourable, that, according to my information, the cutting or digging work of each yard or mile in length, does not amount to one half of Mr Smeaton's lowest estimate: and I have already hinted, that by the Canal's taking this southerly direction, it may create as much or more extra toll as will defray the difference of expence.—— It is no doubt a specious argument to hold out to the proprietors, that they will save money in the execution; but nothing is more fallacious, than to suppose, that because a person or society may save money by an improper or too narrow execution of an undertaking, that therefore they will be gainers. The contrary is almost always the case; and it may be said with equal propriety, that a man will save money if he does not inclose his lands; which is literally true: at the same time, if he had not saved his money in this way, he might have had an income perhaps equal to doubling his capital, by laying it out.——These gentlemen themselves have had too much experience in business not to be immediately satisfied of the truth of this observation.

In regard to the Dalmuir-burn entry, every argument for the lower entry at Carron will in a great measure apply to this.——I shall only add at present, that these gentlemen themselves, in a paper published at London during the dependence of the bill for the



the small Canal, maintained, "That it was improper to terminate the great Canal seven miles below Glasgow; because it would load that city with an uncertain river-navigation, unnecessarily, as well as contrary to public utility and sound policy."——I do fully admit the uncertainty of the river-navigation; and say, That it would be much more contrary to public utility and sound policy, to subject, unnecessarily, the whole trade of the country, which is of so far greater importance than that of Glasgow alone, to the inconvenience of this uncertain river-navigation; not to mention that the river-course would be several miles round about.

If I have made any mistakes in this letter, they are not intentional; and I shall be very ready to acknowledge them. And, upon the whole, Sir, as the Carron gentlemen have undoubtedly *great private interest* in this navigation, and have said in their application to the Canal-meeting, *That they are ready, in every instance, to give the clearest demonstration, that they will consider that private interest as most effectually served by those means which will best promote the interest of the public*, I heartily wish, and do hope, that they will not wantonly diminish the great merit they have with this country; that they will now let our divisions be buried in oblivion; that they will be satisfied with a branch from the main Canal, either to their works, or lower down the river, as they may find most convenient;—that for their own interest they will suspend an application for the improvement of the river until people's minds be less heated;—and as they are well able, that they will henceforward promote, to the utmost of their power, the most speedy and proper execution of the navigation from Hewk entry to Dalmuir-burn.

I have the honour, *&c.*

EDINBURGH, Nov. 25.
1768.