A LETTER

ON THE

PROJECTED CHANGE

OF

The Outfall

OF THE

RIVER WELLAND:

SHEWING

THE DANGEROUS TENDENCY OF THAT CHANGE;

WITH

OBSERVATIONS

ON

THE RIVER WITHAM,

AND

THE BOSTON HARBOUR ACT.

By WILLIAM CHAPMAN.

STRIVE NOT TO BE BETTER THAN WELL.

BOSTON;

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1814.

TO THE

Proprietors of Estates,

AND OTHER PERSONS INTERESTED IN

The Drainage and Navigation

BY THE RIVER WELLAND.

SEEING the outfall of the WELLAND is once more about to be put under legislative regulations, and conceiving some of the provisions of the intended Act calculated to lead to consequences most injurious to your interests as well as to the interests of all persons having a stake in the WITHAM DRAINAGE and in the prosperity of the PORT of BOSTON, I cannot allow your ensuing meeting to pass over without again entering my protest again the leading points of your plan.

You propose to cut a canal from FOSDYKE to the WITHAM, and there build a sluice nearly opposite to that at HOB-HOLE, through which drainage and navigation are to be carried on, thereby leaving the present channel, called the Washway, a surface of perhaps 20 square miles, to be silted up.

The wisdom of this plan is what I more than doubt; and, as no Report has hitherto been published, taking what may be called a Sea view of the subject, and obviating what appears to be the dangerous and mischievous side of the plan, I do hope and trust, that, before the terms

of the Bill be finally resolved on, and the fate of the outfall and of the Fens decided, competent persons may be appointed to further investigate the subject in all its possible relations and bearings.

That Mr. Rennie or Mr. Bevan are not competent to this investigation is by no means questioned; but, as the projected plan will lead to consequences greater than seems to have been contemplated, it will require the best and closest consideration.

The subject, if I mistake not, has hitherto been considered as little else than a mere canal-and-sluice-question. It is, however, much more. It demands *proof* that the outfall will not be injured; and, if this cannot be *proved*, then it becomes a question wherein *good* and *evil*, advantages and disadvantages, are to be balanced. If evidence the most satisfactory cannot be adduced that the outfall will not be injured, then surely it will be the extreme of folly to put to risk the advantages at present possessed.

What is the *present* state of Fen Drainage you *know*; and you also *know* that it cannot be impaired without injuring the whole level of the Fens,—but if you do *not know* what will be the effect of your projected works, upon the drainage in *future*, are you not taking upon yourselves a dreadful responsibility?

Allow me, then, to ask the most sanguine promoter of the project, whether he can clearly see any important advantage other than that of gaining *from* the Sea a few thousands of acres of land; and I would further ask whether, for such a prize, it can reasonably be expected that the proprietors of low lands from Crowland to Deeping, to Bourn, to Lincoln, to Bardney, to Tattershall, including the newly-enclosed Fens, will submit to have their lands put in jeopardy of being again given *to* the Sea, which must be in a great degree the case, if the outfall be injured. But too true it is, that the industry of ages has been frequently marred by a single false step; and it seems quite as probable that the country will again sleep as soundly (when they should be all eyes and ears) as they did when they suffered the Corporation of Boston to tax the produce of their lands, *and burthen enormously and unjustly* the trade of the port, for no one useful or rational purpose whatever,—and that too without why or wherefore.

In thus roundly and broadly condemning the Boston Harbour Act, I challenge a defence of it. The Corporation may, indeed, say that they were guided by the Report of two eminent engineers, as to the necessity of walling the river; but, surely, works so expensive, useless, and burthensome, were never built on such a sandy foundation as is this Report.

In it conclusions are so evidently drawn from assumed and inapplicable premises, that it appears wonderful such a Report should have been adopted.

Can it be credited, that, as a remedy for the inequalities in the bottom and sides of the river, it is gravely recommended to use the dredging machine (vulgo hedgehog); and it is affirmed that, regularity being *once* made, *it will be preserved.* To those who have witnessed the effects of strong tides and winter currents, in scouring holes in various parts of this muddy river, the hedgehog operation must appear truly marvellous. The Corporation, however, no doubt, believe in it; and the public may expect that, when about 50,000*l.* have been expended in walling the sides of the river, in the exact parliamentary line of wisdom, which must be the best of all possible lines, and equally fit dry seasons and wet, it will be time to bring into action the levelling and wonder-working hedgehog! *

Let us hope, however, that, if there be no secret understanding about further works, yet to be announced (of which I have some suspicions), this Corporation may partly atone for what is past, by offering seasonable opposition to a project which threatens to annihilate

* Note, see page 14.

the dignity of their vice admiralty, and render ships as scarce at Boston, as they now are at Spalding or at Lincoln.

Amongst the great body of those whose property is to be put to hazard, may be enumerated the adventurers in the works going on between Lincoln and Boston; who are, no doubt, anticipating abundance of riches from increased facilities afforded to inland commerce; little dreaming that these will be more than counterbalanced, by an increase of shoals, bars, and sand-banks, which their neighbours, at Spalding, are about to raise up at the mouth of the port: thus what is to be gained at one end is to be more than lost at the other.

I have already observed that the subject seems to have been considered as little else than a canal-and-sluice question. It is seen that the Witham has a sluice to keep out the tides, and, therefore, why not the Welland? Why shall not the Welland be graced with a little Grand Sluice, seeing the Witham has a great one!—This may be very sound logic for the multitude; but engineers, and those who are fitted to take the lead in directing the destinies of a country, will take a nearer view of the subject.

They should know, for it is a fact, that the channel and outfall of the Witham, without a sluice, was *formerly* very superior to the present state; and that the improvement, since the pas-

sing of the Witham Act, is to be ascribed, not to the sluice at Boston, but to the confinement of the waters within banks, and the scouring out of drains; and that there is reason to believe the improvement would have been still greater, had there been no sluice, and the tide had been permitted to range up the new river.

This opinion seems sanctioned by Mr. Rennie, who, in one of his Reports, has doubted the utility of the Grand Sluice; and, in another, has said (in reply to a question proposed about keeping open the doors of this Sluice at all times), "if any thing effectual is to be done in this way, it ought to be by allowing the water a free passage upwards, by which means the silt which would be desposited in the lower part of the river, would be scoured away by the great quantity of clear water which would return each tide." Mr. Rennie has also said, "were the tide water suffered to pass through the Grand Sluice, the depth of water through the Town of Boston, and for some distance upwards, as well as below the entrance of the channel at Frampton western point, would be encreased."

Here then we have high authority for the inutility of sluices in a tide river, and for the utility of a free flux and reflux of the tide, for not only keeping open, but for giving an "encreased" depth of water in the upper part of

the Witham, through the town of Boston, and below the entrance of the channel at Frampton western point, at which point it is now proposed to build a sea sluice!

Surely after such an opinion, as to the utility of the tides for improving the Witham, Mr. Rennie cannot recommend a sluice to shut it out from the Welland.

But, notwithstanding the sluice at Boston obstructs the tides, and, in the opinion of Mr. Rennie, prevents an increase of depth of water from one end of the haven to the other, the haven and outfall would have been much improved in the last ten years, had that gentleman's first and wisest advice been followed; namely, to cut through the marshes in the lower part, and thereby, as he said, "completely" drain even the East Fen, through Maud Foster's Sluice.

The plan was perhaps too simple, and too economical. By it the work might have been accomplished with a saving of ten years in time, and of two hundred thousand pounds in money.

It will also be to my purpose to quote the opinion of another engineer,—Captain Huddart,—who was employed by the Corporation of Boston; and though I consider his Report, as a whole, very erroneous, yet, I perfectly agree with him, when he says "was the tide prevented from flowing up the Harbour to Boston, the

navigation of the Scalp would *soon be lost*, and probably not a great many years after that might *endanger the drainage of the country.*"

Is not this opinion applicable to the Welland also, and is it not alarming for a country under a somewhat precarious state of Drainage? Will the Corporations of Lincoln, Boston, and Stamford; Will the great Proprietors of the soil; the Commissioners of the great works of Drainage, the Merchants and Shipowners, all shut their ears to this?

Suppose, however, you will have a Welland Sluice; and that it will be placed *at first* in what shall appear to be the most eligible situation; yet, remember, it will be liable to be obstructed, and even overturned, by a power more omnipotent than an Act of Parliament; and the experience of a few years may convince the country that the sluice will then be in a wrong place,—that it will be necessary to remove it, and permit the flux and reflux of the tide.

The Sea doors of the sluice at Boston, though far out of the reach of the violence of the Sea, are sometimes, in a dry season, blocked up by sand to the height of 8 or 10 feet. *Your* sluice will be liable, not only to be choaked up, but to be washed down.

The situation is much more exposed and perilous than that of the sluice at Hob-hole; and

it is presumed that your engineers will not guarantee the stability of your sluice against the attacks of an enraged ocean, or, that the soft and shifting sands will, at their fiat, become hard and immoveable.

But *why* erect a Sluice, when it is notorious that your river and outfall have of late years, improved? You have now a salt water reservoir, of, perhaps, 20 square miles; and can it have escaped your engineers that the filling and emptying this vast reservoir, with every tide, is a powerful agent for preserving the channels seaward, and rendering to the drainage and navigation, of both the Witham and the Welland, essential service.

Can it be supposed that, with the loss of this vast engine, the sands below the Scalp will not be quickly more elevated, the channels sooner dry, and shoal water be found where vessels now ride at low water?

A consequence of this will be the loss of that near and excellent roadstead Clay-hole; which now affords protection to the shipping, and facility to the commerce of the port. Without such a roadstead, vessels will be exposed to all the accidents of the Wisbeach channel.

Formerly Lynn had a roadstead for ships, only one mile below the town; but, by injudicious meddling, and the building of Denver sluice, that roadstead was lost; and vessels are now

compelled to ride 12 or 14 miles below the town, to the great injury of the commerce of that port, as well as to the drainage of the country.

It is in consequence of these difficulties that Sea coals are always dearer at Lynn and Wisbeach than at Boston; and thus, the Grand Sluice, the Boston Harbour Act, and your projected works, are all evils, operating to the production of *high* price on articles of import, or what you want to buy, and of *low* price on the exportable produce of the country, or on what you have to sell.

But, I may be cooly told, that, should Clay Hole be lost, should shoal water be found where it is now deep, should your Sluice be seen to be worse than useless, and the general drainage be impaired, resources will nevertheless be found. True, I would answer, I have no doubt that the genius of future engineers will be employed, and the country roundly taxed for the making of new plans, cutting new canals, and building new Sluices, as expedients to remedy the blunders of former ages,--just as quacks, by mismanagement, superinduce disease upon disease, yet are always boasting of their remedies.

Believing it possible, that, among the arcana of engineers, one may be to carry the united Witham and Welland waters in a direct line from Hob-hole to Clay-hole—(a scheme that

looks pretty and simple enough upon paper,) I here enter my protest against such work. To assign reasons, which are "as plenty as blackberries," is not now necessary; but from such further mischief may the country be preserved.

WILLIAM CHAPMAN.

Boston, 31st October, 1814.

* *Note to page 6.*

The Report in question states, that, by walling the river, "what has been lost by contracting the width at the top, may "be in part regained by *increasing* it at the bottom." Then, we want, it seems, a *broad bottomed* river. But, behold! the great work commences with a brick wall, in front of the principal Quay, projecting into and *narrowing* the channel, about 10 feet.

By this, a commodious Quay will be obtained; but I do not expect vessels loading and delivering there will find a diminution of difficulties; all things considered, they will, probably, rather increase.

I expect it will be seen that silt will adhere to, and shelve up against, the wall; keeping vessels at a distance; which, in this contracted and busy part, will directly militate against a leading maxim of the Report, namely, that "it is necessary to its preservation, that the river should be of a width proportionate to the area taken from its channel, by the hulls of the vessels."

That silt will lodge and shelve up against the wall, may be concluded, from the fact of its doing so against the wall, built in the river, by Mr. Wilford, where vessels are always kept at a distance from it.

On a view of the river, it will be seen that the best births for vessels are those where stages and *open* jetty-work are found, giving the waters a passage *within* them. Even that greatest of all projections, Mr. Barnard's, the erection of which I do not vindicate, cannot be shewn to obstruct the currents. Since its erection the river is deeper there; and I much question, should a wall be made there, in the legal line, whether, by accumulations of sand at the foot of it, vessels would not be kept as far in the channel as they now are by the jetty-work.

If so, is not the evil rather imaginary than real? But, it is *against an Act of Parliament*. True, But is it *against*, and does it *impede*, either *drainage or navigation*? If not, why

disturb it? Seeing it is so desirable to have deep water close to the Quays, and especially to the public Quays, as was formerly the case, it is much to be wondered that a consideration of the causes of the silting up at these places, has not led to a remedy more cheap and more rational than the building of walls.

The first, and, in my opinion, the principal cause of the silting up, was the erection of the Grand Sluice, by which a new direction was given to the currents, upon the first salient angle below the Sluice, from whence a new angle of incidence was formed, and thus a change in the angles of incidence and of reflection would and did take place through the whole course of the river, turning, in some places, channel into marsh, and in others marsh into channel. Some private works, and the removal of the peir of the old bridge, from the bed of the river, have had, in a less degree, the same tendency. If this opinion be correct, Mr. Rennie, or any other eminent civil engineer, would find little more difficulty in giving a new and suitable direction to the course of the currents of flood and ebb, than would a military engineer in fixing the range of a shot.

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