tended to be able to pay their actual expenses for less than two cents per ton per mile;* though there have been several instances of an intention at some future day to work cheaper than that. Until the thing is accomplished *we are compelled to assume two cents per ton per mile as the present minimum of railway expenses.* Half a cent per ton per mile, though below the average, is not the minimum of the cost of freight on a good canal with horse-power.

But, after all, past experience on this head is of much less value than is generally supposed. A new element has been introduced into the question of canal navigation. The use of steam, even on small canals, has set all our former calculations aside, and completely changed all the data of this problem.

On the Birmingham and Liverpool Junction canal steam tugs have been more than a year in constant operation carrying on the trade by drawing boats in regular and long trains. The canal is of small dimensions, and presents numerous impediments to the success of the experiment. The cross-section is small, the locks narrow, the line crooked, and the bridges frequent and low.

Your canal, on the contrary, has all the advantages of an ample depth and breadth; capacious locks; freedom from the obstruction of bridges, and moderate and well developed flexures. Notwithstanding the impediments on the English line success is complete; and there can be no doubt that with your advantages, and a large and steady trade in addition, it will be still more striking. On the English line from six to ten boats are taken in a train; on yours two or three would be sufficient.

I am not well informed in respect to the tonnage of the boats of the Chesapeake and Ohio canal; but I presume that in estimating their capacity at about 90 tons I shall be within the limit. A small engine—say 15 or 20 horses power—placed in one of these boats will move it with another boat of equal burthen in tow, at three miles per hour.

The capital required will be

For three boats, a $1,000 each,	$3,000
For a 20 horses power engine, a $2,000	2,000
Aggregate capital required for transporting 250 tons,	$5,000

To convey this amount of freight on a rail road, will require,

A 20 ton locomotive, at	$10,000
50 cars of 5 tons each, a $300,	15,000
Capital in an equivalent train,	$25,000

The construction of the boats is so simple that they can be kept almost constantly running. No extras are required; no change of engines; and no double or treeble set of cars. But leaving out of

*I do not wish to make any invidious remark in this paper; but the accounts of the only work professing to carry at an actual cost for less than two cents per ton per mile, are not so published as to justify any public confidence in them.