

Channel, however narrow or crooked (far more so than either of these,) may be rendered safe by such regulations as may be established by the constituted authorities—in illustration of which, the River Clyde in Scotland, furnishes a prominent example. Furthermore, the adoption and perfection of the New Channel involves the stoppage of the old one, and thereby, will force the whole trade of the River through the New Channel, thus rendering its enlargement at once to a width of 100 fathoms, absolutely necessary, while the character of the entire bottom of the Old Channel, shewn by Mr. Logan to be lime clay, easily removed by harrowing, relieves that Channel from the difficulties stated, as apprehended by Mr. Killaly from the entanglement of the passing vessels with the buoys, boats and rigging employed on the work. Nine tenths, however, of the bottom of the New Channel, is of the same material as that of the old, and as easily removed by similar means, while the cut through the St. Francis bank, is chiefly coarse and fine sand, which must be taken out by dredging. When thus fully excavated throughout to 100 fathoms in width, and the principal part of the St. Lawrence waters turned therein, the New Channel would doubtless have a slightly stronger current, and be more acceptable to all concerned than the old one. But the other considerations viewed in connection with the estimates will shew if the advantages of straightness, and consequent reduced length will compensate for the greater cost—for from our premises it follows that this difference of cost may be so great as to more than counterbalance the slight curves of the Old Channel. The results of these estimates are as follows in tabular statement:

### TABLE OF COSTS.

WIDTH 150 FEET.										Depth.
Old Channel Cost.			New Channel Cost.			Difference.				
£	s.	d.	£	s.	d.	£	s.	d.	Feet.	
9720	19	0	13665	13	4	3935	14	4	13	
16621	16	3	21709	8	6	5087	12	3	14	
22303	5	6	36659	14	0	14356	8	6	15	
28201	3	10	47898	8	4	19697	4	6	16	

WIDTH 300 FEET.										Depth.
Old Channel Cost.			New Channel Cost.			Difference.				
£	s.	d.	£	s.	d.	£	s.	d.	Feet.	
16253	1	4	26457	13	6	10204	12	2	13	
25859	18	9	46040	17	1	20180	18	4	14	
37225	11	2	70851	0	3	33625	9	1	15	
49624	18	10	88205	17	3	38580	18	5	16	

WIDTH 450 FEET.									Depth.
Old Channel Cost.			New Channel Cost.			Difference.			
£	s.	d.	£	s.	d.	£	s.	d.	Feet.
10481	12	1	36166	15	8	14685	3	7	13
32340	11	9	67275	6	10	34934	15	1	14
48104	8	10	97854	17	7	49750	8	9	15
65040	7	0	123852	8	1	58812	1	1	16

Estimates as much in detail as our time will admit, are hereto annexed, and marked A. and B.

These results show that at 13 feet depth of channel and of the respective widths of 150, 300, 450 feet the differences in favor of the Old Channel are £3,935 14 4, £10,204 12 2, and £14,685 3 7. At 14 feet depth £1,087 12 3, £20,180 18 4, and £34,934 15 1. At 15 feet depth, £14,356 8 6, £33,625 9 1, and £49,750 8 9. And at 16 feet depth, £19,897 4 6, £38,580 18 5, and £58,812 1 1. Or the cost by the Old Channel at 16 feet in depth and 300 feet in width is but £1,722 10 6 more than the New of half that width; and at the same depth and a width of 450 feet the cost of the New, (£123,852 8 1,) would be double that by the Old, (£65,040 7 0.) In fact any available amount of money will furnish more improved accommodation by the Old than by the New Channel.

Viewing therefore in any aspect of width and depth, we think that the greatly diminished cost of improving the Old Channel more than compensates for its few curves and slightly increased distance.

There are two other considerations worthy of note, one is, that in addition to the diminished cost, a greater volume of water can be diverted into the Old than into the New Channel, and with a far less risk to the stability of the works required to be constructed for that purpose.

2nd.—It has not heretofore been contemplated to dispense with the Old Channel, on the contrary, at the greatest width heretofore proposed for the New Channel, to wit, 300 feet, "that breadth being sufficient for the special and principal purpose of enabling ships of heavy draft in tow of steamers to pass the Lake." Rafts are to be forbidden its use, "lest they should injure the buoys, or get in the way of vessels;" neither is it to be used by night, "the present ship Channel remaining sufficient for the general purposes of trade."

If then as we have asserted, as much water as can be practically and with ease accumulated should be thrown into the Old Channel, and hence the propriety of closing the other; and 300 feet width be not sufficient for the general purposes of the vast trade destined to seek the St. Lawrence as its favored avenue, it follows that a wider Channel is advisable; and we on mature deliberation recommend 450 feet as the proper width of the contemplated Channel to be excavated to the depth of 16 feet.

Such dimensions naturally point to the Old Channel, which for a distance of about five miles, presents a superabundant width and depth of water, and for the remainder of its extent is as easily to be widened and deepened as the corresponding part of the New Channel; and for this and other reasons stated, we are of opinion that you should adopt the Old Channel for improvement and shut up and abandon the New. We cannot perceive any agency in the argument that more money should be spent to attain an object for which much has already been ineffectually expended, when, as in the present instance, a less sum applied in another direction will attain that object.

We estimate that three steamers of 150 horse power each, with properly constructed harrows as large and heavy as can be drawn five to six miles the hour will produce 13 feet depth of water in the Old Channel 450 feet wide, throughout, in one season's work, from the opening to the close of the navigation,—also that 14 feet depth will require the same power two seasons; 15 feet depth three seasons, and 16 feet depth four years.

The same ultimate effect could not be produced in the New Channel in a less period than six years.