that the table (in McAlpine's Report) *is entirely unreliable and erroneous.*" " We propose to confine ourselves to a few simple illustrations of its *inaccuracies.*"

" It will thus be seen that Mr. McAlpine makes a horse-power equal in the first case to 38 c. ft. of water per minute ; in the second, 48 ; in the third, 33; and in the fourth 40. As the fall of the water as applied to Breast Wheels, proposed to be used by Mr. McAlpine, will be the same in all cases, *it is of course an utter absurdity* to say that a horse-power requires 20 to 25 per cent. more water in one case than it does in another ; *yet that is practically what* Mr. McAlpine's calculations tell us."

Among honorable men, the suppression of the truth is regarded nearly in the same light as the utterance of a falsehood, and as one-fourth of the " observations" are devoted to these alleged " errors, deficiencies and absurdities," an examination of their truthfulness will serve to show the general character of the whole pamphlet.

In ordinary conversation with a moderately intelligent person, not even an engineer, it would not be necessary to state that the power of any water fall depends, not only upon the quantity of the water, but upon its falls. Yet the whole criticism of the above quotation from the pamphlet depends upon the " absurd' *omission of the fall of the water,* in each case stated in the table.

The table states four distinct conditions of the water at the wheel-house, viz :—its elevation (and consequently the height of its fall) when the river is 36 and again 38 feet above the datum line, and then again when it is at these two elevations, but obstructed by ice three feet thick.

These elevations and obstructions give different falls to the water of 14, 16, 11 and 13 feet, and these falls multiplied respectively into the quantities of water flowing at those times produce the different theoretic horse-power stated in the table.

It is therefore a mere arithmetical question to determine whether the table is correct or " erroneous." Thus with the water at

36 ft discharging 111,375 c.ft. with 14 ft fall	=2,953 H.P.
38 ft " 150,772 " " 16 " =4,569 "
36 ft & 3 ft of ice " 84,672 " " 11 " =1,764 "
38 ft " " 122,760 " " 13 " =3,025 "

These amounts (with two trifling discrepancies of a tenth of one per cent., chargeable to the copyist or printer,) correspond exactly with those stated in the table.

The pamphlet occupies the remainder of page 6, in repeating this blunder of computing the horse power, under these varying conditions of head, *by again using only one of the elements* necessary to determine the power, and then adds on page 7 :—

" The foregoing example shows the *inconsistency and consequent worthlessness* of the table as judged by itself."

Page 7—" We will now compare the calculations given in table with those found

in another portion of the report." And then follows a statement of Mr. Sipple, that the Lachine Canal *in the worst times* had an area of 500 square feet, and a velocity of 50 feet per minute, giving with 14 feet fall, 663 horse-power," and then is added—

" That is, the proposed enlarged aqueduct will have 2¼ times as much power as the Lachine Canal, under the same fall."

" As the enlarged aqueduct will be, at most, only 10 to 20 per cent more capacious than the Lachine Canal, *it is evidently absurd* to calculate upon getting 225 per cent more power from it, under the same fall, as stated in table."

The question at issue in this case is again simply an arithmetical one. 500 square feet area of water, moving at the rate of 50 feet per minute and falling 14 feet, will produce 663 theoretic horse-power ; and 672 square feet moving 229 feet per second and falling 11 feet, will produce 1,764 theoretic horse-power.

Mr. Sipple stated that his canal had 500 square feet of water way, under the ice, "in the worst times," which were, when the ice may have been upwards of four feet thick. The table is calculated upon a different size and formed canal with an ice covering assumed at three feet thick.

The Lachine Canal had two inches, and the enlarged canal was calculated with ten inches fall per mile.

The deception practised in the pamphlet is thus rendered apparent.

Page 7—"We will now test Mr. McAlpine's calculations with some of those made by others." And then follows an assertion that Mr. Shanly has stated " the discharge from a canal almost identical in size, &c., with the one recommended by Mr. McAlpine, at 450 millions of gallons in 24 hours," while the latter estimates " the discharge at 760 millions or 70 per cent. greater," and it also states that Mr. Lesage calculates the discharge of the canal proposed by him in January, 1869, at 895 millions or 38 per cent. different from Mr. McAlpine."

I do not have the supplemental report of Mr. Shanly to refer to, but I find on page 14 of his first report, that he estimates on the general proportions (of a canal,) on a scale to insure the passage *of at least* 600 *millions* of gallons in 24 hours, under the most obstructive condition of frost and ice, and I am therefore warranted in distrusting the accuracy of the extract from his supplemental report, or of its applicability to the comparison which has been made in the pamphlet.

The report of Mr. Lesage does not state at *what level* of water in the river the discharge of 895 millions of gallons is calculated, but he does state that his canal was to have a fall of only two-tenths of a foot per mile, while my calculations were based upon a fall of three inches per mile.

The pamphlet is characterised throughout by such deceptive statements.