

may be so constructed and kept in repair, that the waste of water need not ordinarily be great, but it often happens, that gravel and other substances are drawn by the water, when the lock is either filling or emptying, between the large gates and mitre sills, and between the paddle-gate and its frame. In this manner water is *constantly wasting*; and this contingency is *in proportion to the number of locks drawing their supply from the same source.*" &c. &c.

"An unusual waste," they say, "at either of the locks where there is a succession of 37 short levels, would, *in a short period, empty the levels above*, and throw a surplus on levels below, which must immediately be passed to the next levels. This is a *common occurrence*, for the reasons which have been mentioned, and in order to keep the canal *in a condition for navigation, a very considerable extra quantity of water must almost constantly be passing from the summit.*"

We see from these quotations, that the New York canal commissioners, gentlemen of long experience, dwelt upon the great waste and expenditure of water where the locks are crowded and the levels short—a circumstance which is very apt to be overlooked. In their ideas, the commissioners are sustained by the reports of their Engineers

These quotations from the report of the canal commissioners of New York, strongly sustain us in our assertion of having been *very liberal in favour* of the practicability of the several northern routes, so far as regards the waste of water from leakage of canal, and from closely crowded locks. We are also sustained by the same commissioners, as will appear from an examination of their reports, in a similar assertion respecting the small list of locks assumed by us: we took a less list than we would venture to advise in construction, viz:—only $4\frac{1}{2}$ feet lift—on the Chinango canal the lift adopted was 6 feet. Mr. Trimble assumes 5 feet—and the committee in their suppositions have taken the same.

There is still another element of calculation of the quantity of water required for the summit level that remains to be considered, viz:—The amount of tonnage to be provided for.

The committee have supposed 100 boats to pass daily in each direction over the summit.

Mr. Trimble assumed 125 boats in his calculations; while our calculations were for 115 boats, (as will be found by dividing 400 lockful by $1\frac{3}{4}$ per boat.)

We must recollect that we are providing in our calculation for the trade that will *in all time to come* pass over this canal. In making up our minds upon such a subject it may be well to refer to the sober realities of the past few years. In ten years from its completion we find with single locks during a navigable year that ~~the canal on the Hudson river, 140 boats daily, that is, on an average 70 in each direction.~~
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