

The experiments referred to above, were made in 1839, and having been undertaken with the express view of acquiring data upon which to found an accurate calculation of the probable wants of the Genessee Valley canal on $51\frac{1}{2}$ miles of its length, which is to be supplied chiefly from reservoirs—being in fact designed to guide the expenditure of a large sum of money in such works, they no doubt received all that care and attention which an important object demanded, and which justifies an entire reliance upon Mr. Talcott's results.

Some persons may flatter themselves with the hope, that the consumption of water upon the Chesapeake and Ohio Canal, may possibly be less than the above quotations would indicate: for my own part, the investigations of the skilful and experienced engineers of New York, verified as they have been by practice, command my confidence, and induce me without hesitation to assume, that this canal, like others elsewhere, will need, besides its lockage water, a supply from every feeder, equivalent to 100 cubic feet per minute, for every mile of distance fed.

To introduce an intermediate feeder from the Potomac, into the canal between the mouth of the south branch and Cumberland, would, as the work has been planned, be impracticable without great expense: after passing Evitt's creek there, the neighborhood of the mouth of the South Branch is the first place where a further supply of water can be introduced.

From Cumberland to the South Branch, by the line of the canal, is near $19\frac{1}{2}$ miles: this then is the distance to be fed from the drainage of the valley of the North Branch.

Let us now consider the probable amount of water required for lockage; the whole of which, for the thorough trade, must be supplied from the 75th, or Cumberland level; and for this I shall assume the number of boats plying each day upon the canal near Cumberland at 120. (the same number adopted by the U. S. Engineers:) 60 being supposed to arrive and 60 to depart each day, their lockages being assumed to take place independently and not by the "alternate passage."* These boats, if of 75 tons, would be competent to carry downward, during the navigable season, one million of tons, and would draw from the Cumberland dam per day for lockage 120 times

*This assumption is made in order to cover the maximum expense of water, though I doubt not that during an active trade many "alternate passages" would be made