

as well as vessels to pass with safety. From the Shanando to the Seneca rapids is deemed between fifty and sixty miles. In this distance there are several rapids not easily passable in dry weather, the most considerable being the Katocton falls, which are dangerous to pass in their present state, but yet may be safely rendered navigable. The Seneca rapids continue for about a mile, the fall nearly ten feet. The principal channel being here much incumbered with riffs of rocks, the small channel running between some islands and the Virginia shore, will admit of being easily cleared, and may, by means of a dam, be supplied with water sufficient to render these rapids safely and expeditiously navigable in most seasons. From hence it is reckoned six miles to the great falls. In this distance, excepting one narrow ridge or riff of rocks which crosses the river, the other impediments are trifling. At the great falls there is a necessity for again carrying a canal from the river, and eight locks will be requisite, the fall being but little short of eighty feet in about one mile's distance. The canal we judge may be carried down on the Virginia side with great safety. From hence to the lower falls is about six miles, in which distance there are several rapids, but none so considerable but may be easily made passable. The greatest impediment here seems to arise from the great number of detached rocks and large stones which are thickly interspersed through much of this part of the river. From the upper end of the rapids at the lower falls to tide water may be full two miles, the fall a few feet under forty, yet four locks will be necessary. The canal may be carried out of the river on the Maryland shore, from opposite the lower end of an island above, into a cove at some distance below, when the tide flows, the whole extent about three miles, it being necessary to extend the canal that distance to remove the locks from the danger of floods.

From the above state it may be reasonably inferred, that the navigation of the river may be much improved, and probably rendered navigable in its natural channel during most seasons, except in those three places where it is judged necessary to cut canals for the greater security of the locks. But as in this distance of nearly one hundred and ninety miles, it appears that only five or six miles of canal are required, and although it is perfectly expedient to have these formed, and the locks constructed of dimensions sufficient to admit vessels drawing three feet water, and rafts of at least sixty feet long, yet we are of opinion that vessels of six, and not exceeding ten ton burthen, will be found most profitable for the river.

It appears to us a business extremely difficult, to render this river navigable for heavy vessels. From the many rapids and riffes, the fall must be very considerable; and although by means of dams run obliquely across the river, to confine and swell the water below, or where the depths of water will admit, by extending the current above the velocity of these rapids, may doubtless be much diminished; yet the current being weakened only from being lengthened, although the effort required to carry them up will not be so great, it must continue longer; the difficulty therefore and uncertainty of carrying heavy vessels against a stream still powerful, will require too many hands to be profitable.

In canals and in deep rivers of gentle current, vessels are towed along chiefly by horses, but the rapids in Patowmack, and the frequent shiftings of the channel from one shore to the other, together with the difficulty and great expence of constructing towing paths, must in this river render the assistance of horses tedious and precarious.

Lighter vessels do not stand in need of such aid, but merely by means of a couple of poles (for which the bottom of this river seems every where favourably adapted) can be most readily and safely set up through those rapids. Besides we must candidly confess, that it is doubtful whether a sufficient depth of water can be procured at all seasons, even for vessels of the burthens proposed. From the low state in which we have sometimes seen the river, we are rather inclined to believe that it may fail in very dry times; however, should we be agreeably deceived, and it may be found upon trial that the navigation of the river may be improved, so as to admit larger vessels to pass against the stream, no harm can ensue, as the locks, as well as canals, are proposed to be constructed so as to admit them.

Although we have in the estimate been as particular in dividing the work as we judge to be necessary, we have not taken notice of the time required to perform it in. This, it is evident, must depend, with equal management, upon the number of hands employed; and notwithstanding that labourers seem scarce, still it is highly probable that a sufficient number of hands may be procured to complete the navigation from Cumberland down to the great falls in the space of two years. There appear to us several inducements for wishing to begin with this part of the work. It is certainly the easiest part of it; and as we are but strangers to undertakings of this nature, knowledge and experience would be gained to assist in prosecuting the more difficult part. The sum and the time required to perform this portion of the work in, is likewise very inconsiderable, considering the great extent of river made navigable, and merely trifling to the benefit that would immediately flow from opening a water communication with so fertile and extensive a country, upon the produce of which a very considerable toll might be collected, that would greatly contribute towards prosecuting the remaining part of the work to tide water, which we conceive might be effected in three years more.