

shutes leading directly into canal boats lying in the pool, as is successfully and economically practised elsewhere. And this course if adopted by the parties interested in the transportation of coal, will undoubtedly, in a great degree (though not entirely,) alleviate the necessity of a more ample basin within the canal itself.

A difficulty in entering the canal from the pool of the dam, will however supervene owing to the erroneous location of the guard lock, of which I come now to speak: At the confluence of Will's Creek with the North Branch, an extensive gravel bar has been formed and the creek which formerly ran close to the face of the grand lock, now enters the North Branch some 300 feet in advance of it.

The surface of the shoal of gravel in front of the guard lock is  $2\frac{1}{2}$  feet above the bottom of the canal or 26 inches higher than the top of the mitre sill; furnishing the first instance I have ever known of the sill of a guard lock being laid more than two feet under the bed of a stream whose navigation it was designed to accommodate: consequently before loaded boats can enter from the pool, with facility, a channel must be cut at least 26 inches deep in order to admit them—the question then naturally comes up, how is this channel, dug out of the river bed, to be kept open forever?—the answer would probably be, by dredging—but of this it may be observed;

- 1.—That the deposite of heavy gravel, borne by Wills' creek from the mountains, will be difficult to move in that way.
- 2.—That every heavy freshet would again close up the channel.
- 3.—That if even if dredging should prove successful, it will entail upon the canal company an annual expense forever, which ought to, and might have been, avoided.

That it was by no means necessary to locate the guard-lock at Cumberland, in a position where its usefulness will be so essentially lessened, may be rendered manifest by a few remarks:

The gravel shoal, at the mouth of Wills' creek, has accumulated simply because the transporting power possessed by the stream, in the upper parts of its course, has, at its confluence with the North Branch, become impaired or destroyed by natural causes: what these causes are, it is of no moment now to enquire. That the transporting power of the two streams will be still further reduced by the extension of the slack-water consequent upon the erection of the canal dam; and that