

ing the level referred to, a high guard gate will be required at the commencement of the side hill section below Hoyer's mill, in order to prevent the river, which in freshets, will undoubtedly pass around the present upper end of the guard bank and enter the basin, from rushing through and destroying the canal below. Indeed, as a measure of due precaution, this guard gate ought, in any event to be built, to avoid effectually the serious injuries which would result in a high freshet from a sudden breach, either in the canal, guard bank, or in the contemplated levee. Before concluding this subject, I will observe that, with the canal dam upon its present site, (a few hundred feet below the mouth of Wills' creek,) the augmentation of freshets will be much less than would have been the case if the dam on the same level had been built a mile below the town, as was formerly proposed: and hence the change in its location, made by my predecessor, was most judiciously designed to keep down that augmentation to the lowest possible limit.

Having now, as briefly as possible, touched upon most of the questions which have presented themselves in connection with the plan of the works at Cumberland, I shall proceed to a succinct description of the line and its condition.

The surface of the canal, in the basin at Cumberland, is about 600 feet above tide, being attained by 75 locks, averaging near 8 feet lift each. The canal then, between Georgetown and Cumberland, is composed of 75 different levels, of various lengths; the 75th level extending into the latter place, and forming the basin referred to.

The guard lock and flume feeder at the Cumberland dam are just finished, and the dam itself is raised within 7 feet of its intended height; the paving, riprapping, and nearly all the work under water, having been happily completed during the past season. The bailing was done this year by an Archimedes screw, turned by a small high pressure steam engine, proving an immense saving, compared with the charge of draining the foundations in 1839.

The 75th Level is 8 miles and 4282 feet in length; leaving the Cumberland basin it passes along the face of a river bluff below Hoyer's Mill, and then entering upon favorable ground encounters no important obstacle until in approaching Evitt's Creek it is again forced to pass along the face of a cliff: At Evitts Creek it crosses Aqueduct No. 11. of 70 feet span and 14