

It is necessary, to supply the deficiency in the natural flow of the streams, as shown in the above table, that their drainage should be collected in reservoirs, located at the most suitable points.

The single depression in the ridge between Grimes' Spring branch and Warner's branch, which as before stated, determined the elevation of the summit, left no alternative in the location of the reservoirs on Warner's branch. The feeder would enter the summit near its western extremity, and could be made, either to follow the base of this Ridge and cross this depression with a cut of 61 feet, or could be carried directly through by a tunnel to Warner's branch. We have supposed the first case, making its length 1660 yards. A dam of 30 feet in height erected at its intersection with Warner's branch, would make a reservoir, the area of the upper surface of which, when full, would be 26,242 acres, & capable of containing 1072.056 cubic yards of water; a quantity exceeding the greatest amount which can be collected into it at any one time, from a drainage of 546 447 acres, after making the necessary deduction, for filtration and evaporation by 68652 cubic yards.

A reservoir would also be necessary on the Beaver Dam creek.— The point on this stream, at the same level with the assumed summit, is about half a mile below Owens' mill, with a drainage above it of 2715.89 acres, and a dam 40 feet high at this point, would make a reservoir capable of containing 890.251 cubic yards, with a surface, when full, of 20707 acres; the quantity of water to be stored as above being 207113 cubic yards.. A feeder of only 553 yards in length would carry this water to the summit

The whole of the available drainage to the east of Parr's ridge, being an area of 11207.718 acres, could be collected at a point below the intersection of Middle run and Gillies' falls, the canal being so located as to pass without the limits of the reservoir. The greatest quantity of water to be stored from this extent of drainage is 3,325,564 cubic yards. A dam of 48 feet in height, making the capacities of the reservoir 3475.470 cubic yards, has been assumed; the upper surface when full, would be 71.81 acres and it is estimated that a feeder of 757 yards in length would carry this water to the summit.

These three reservoirs then, would be sufficient to collect all the available drainage of the country above the summit, which by careful chaining, was found to be that of an area of 172685 acres, or 26.98 sq. miles, and this under the most liberal supposition, is totally inadequate to supply the wants of a canal of the dimensions of the Chesapeake and Ohio Canal.

Recapitulating the results obtained, we have,—

Summit level, 236,076 feet below Parr's ridge, at Grimes' tobacco-house, 530.179 above mid tide at Balt.

Length of Canal depending } 12 miles 714 yards.
upon summit water ;

Area of drainage for } 17268.5 acres—26.98 square miles,
summit supply, }