

They must, in all cases, be prepared, arranged and laid in such a manner that the horizontal joints shall not exceed five-eighths ($\frac{5}{8}$) of an inch, and the vertical joints in no case be more than one inch and a quarter ($1\frac{1}{4}$); no pinning, levelling up with spalls or otherwise will in any case be permitted.

Coping Stones.—For the retaining walls the coping stones must be at least eighteen (18) inches in height of course, and not less than 4 feet long in line of wall. One-third the length of each wall must be made up of stones of such dimensions that two of them will make up the entire width of the top of it, and project eight inches on the outer or face side, and the other two-thirds to be made up of stones of such sizes that three of them will make up the full width, and project eight inches on the outer side; that is to say, that four feet in length of each wall must be made up of two stones in width, and eight feet in length be made up of three stones in width, alternately, for the entire length of the respective walls.

The lower bed and joints of each stone must be kept full, the upper bed and inner face to be neatly dressed and boucharded, and the inner top arris rounded off to a radius of three inches. The whole to be dressed in such a manner that, when laid, the horizontal and vertical joints shall not exceed three-sixteenths ($\frac{3}{16}$) of an inch.

A dowell 4 inches long of $1\frac{1}{2}$ inch iron must be inserted in every joint, 15 inches back from the inner face, and 7 inches below the top line.

After the coping has been laid a hole is to be drilled through the middle of each of the inside pieces nine inches or more into the course underneath, and 20 inches back from the face, into which a bolt of $1\frac{1}{2}$ inch iron 18 inches long is to be dropped or driven when hot, and the space over and around it filled with melted sulphur mixed with sand.

The coping stones for the connecting walls and the west wings are to be $3\frac{1}{2}$ feet wide on top.

It is to be specially borne in mind that before striking the centres of the first division of the structure, but especially those of the third arch, the masonry over the third abutment pier must be carried up as high as circumstances will warrant, particularly those portions of it immediately under the retaining walls, and that every precaution must be adopted to secure the walls at these places, and at the same time have them carried to the height of medium high water at the centre line of the pier, or where the second section of the coffer dam is to connect with them.

The back of the voussoirs between the inside lines of the retaining walls must be scabbled off where necessary, to form fair bearings for the intermediate parts of the spandrel walls, where concrete is not used to bring up the spaces between the arches to the proper height.

On the top of the third pier the masonry must be carried up to within a few inches of the crown of the arches, and the space on the south side filled in with concrete; loose backing must then be piled up to such a height as may be directed. This backing is to be used in the walls after the fourth, fifth and sixth arches have been laid.

The spaces between the arches and the walls carried up on the abutments and piers must be raised to such a height as may be directed, with concrete, and the whole flushed up to a moderately smooth surface with cement mortar of such a depth and in such a manner as may be required.

Concrete—when used in the foundations or elsewhere, must consist of an approved class of stone broken to cubes of $1\frac{1}{4}$ inches, thoroughly mixed with fresh ground hydraulic cement and clean sharp sand, in such proportions as the materials and works may render necessary. The cement and sand must be reduced to a thin paste before the stones are put into it, and when the whole has been thoroughly incorporated it is to be taken to the place where it is to be used, and spread in layers of from 8 to 12 inches in depth and be well beaten down with suitable rammers.

Mortar.—The whole masonry of the aqueduct and other structures to be herein described must be laid in mortar made of the best hydraulic cement, mixed with