

But efflorescence frequently appears on the faces of walls built without construction joints and in which a wet concrete is puddled in and not tamped in layers, and here other means are obviously essential. Waterproofing the surface of the wall should be effective so long as the waterproofing lasts; indeed, one of the claims made for some of these waterproofing compounds is that efflorescence is prevented. Failing in any or all of these methods of preventing efflorescence, the engineer must resort to remedial measures. The saline coating must be scraped or chipped or, better, washed away with acids.

Efflorescence was removed from a concrete bridge at Washington, D.C., by using hydrochloric (muriatic) acid and common scrubbing brushes; 30 gallons of acid and 36 scrubbing brushes were used to clean 250 square yards of concrete. The acid was diluted with 4 or 5 parts water to 1 of acid; and water constantly played with a hose on the concrete while being cleaned to prevent penetration of the acid. One house front cleaner and five laborers were employed and the total cost was \$150, or 60 cents per square yard. This high cost was due to the difficulty of cleaning the balustrades. It is thought that the cost of cleaning the spandrels and the wing walls did not exceed 20 cents per square yard. The cleaning was perfectly satisfactory. An experiment was made with wire brushes without acid, but the cost was \$2.40 per square yard. The flour removed by the wire brushes was found by analysis to be silicate of lime. Acetic acid was tried in place of muriatic, but required more scrubbing.—Engineering-Contracting.

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(Abstract from "Specifications for Portland Cement," issued by the United States Navy Department, June 12, 1905.)

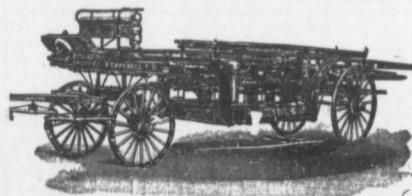
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