

“Channeling Granite with Hammer Drills”

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The article begins:

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Peggy B. Perazzo
Email: pbperazzo@comcast.net
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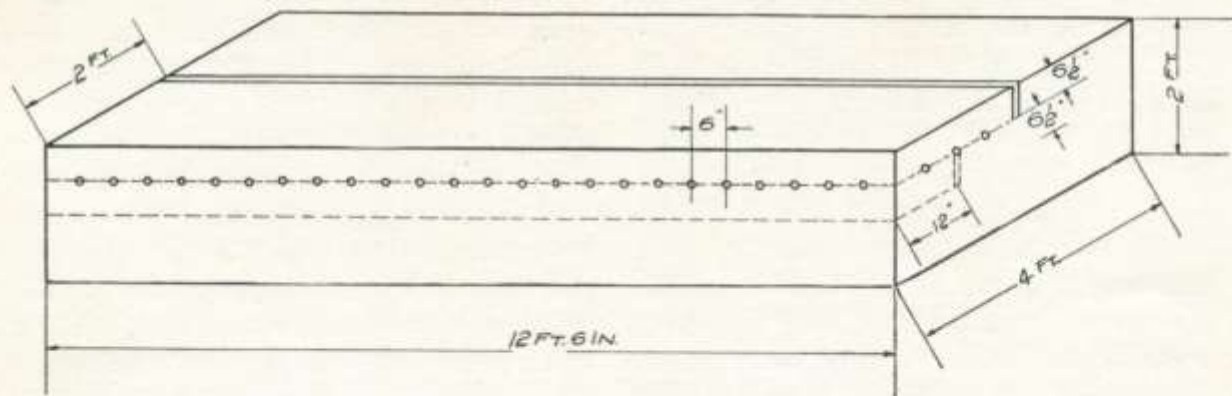
CHANNELING GRANITE WITH HAMMER DRILLS.

The accompanying sketch illustrates an instance of labor saving in quarry practice, by means of a new type of air hammer drill. The work done consisted in cutting one of a set of steps out of a solid block of granite, at the quarry of Jones Bros., Barre, Vermont. The steps were each 12 feet 6 inches long, one foot wide and $6\frac{1}{2}$ inches high. The step removed, being the first, was two feet in width, as shown by the rough sketch. The drill operator first sank a line of $1\frac{1}{4}$ -inch holes along the back of the step, $\frac{3}{8}$ -inch apart. He then broke out the partitions, using the broaching bit shown in the second sketch. This part of the work required only a few seconds for each partition. When this channel was finished, plug holes were drilled on the side and ends of the step, and the whole block of stone split off bodily. The quarry manager was greatly pleased with the result. The usual method, hand hammer and bull set, would have

taken one man a week, whereas the drill did the work in half a day.

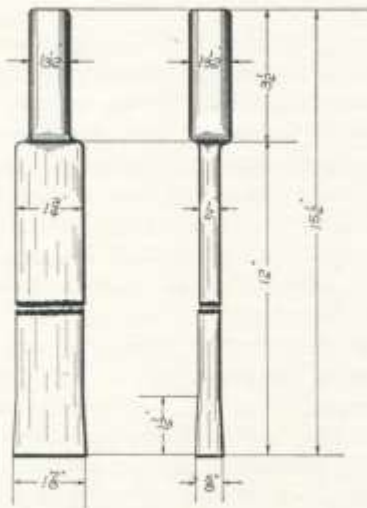
Barre quarrymen expect to apply the same method to much of their ornamental and monumental work, such as cutting out crosses, watering troughs, and in fact any pieces of irregular shape which may be roughed out of the solid stone by means of channeling. The machine used in the instance described was a Sullivan Foot Hole Drill, class D-19, using hollow drill bits and weighing 30 pounds. Its cylinder diameter is $1\frac{1}{4}$ inches, and it uses about 25 cubic feet of free air per minute at 100 pounds pressure. It is suitable for drilling holes up to $1\frac{1}{2}$ inches in diameter, and from one to four feet in depth.

Air is admitted by a push-handle throttle, which is opened when the runner presses the drill against the rock, and closed when this pressure is relieved. The hole is cleaned by the exhaust air, which passes through the drill



Plan for channeling steps from a granite block.

(photo caption) "Plan for channeling steps from a granite block."



Special broach.

steel, and is kept true and round by rotating the steel with a hand wrench. The drill steel terminates in a "rose" bit, with from six to eight cutting edges.

This machine recently set a new cutting record for drills of this class, in Barre granite, by drilling a number of holes twelve inches deep and $1\frac{1}{4}$ inches in diameter, in an average time of one minute and 45 seconds. The best time for a single hole was one minute and 30 seconds. The tool is especially suited for pop or block holes for splitting up large blocks of stone, for shallow channeling, as described above, and quarrying and contract work requiring blasting holes from one to three or four feet in depth.



Sullivan "Plug Drill" on a test run.

(photo captions) (top) "Special Broach." (bottom) "Sullivan 'Plug Drill' on a test run."