

## AN OLD DOUBLE-BARRELED CANNON.

In one of the city squares of Athens, Ga., stands an interesting relic of the civil war—what is probably the only double-barreled cannon ever made. It was designed by a resident of Athens for use in the Confederate service, the idea being to discharge a projectile from each barrel simultaneously, the projectiles to be connected by a chain. No chain was found to be sufficiently strong, however, to withstand the strain, and the weapon was never tested in actual warfare. The cannon is made of cast iron, and was molded at one of the local foundries. It is of 3-inch caliber, having a diameter across the muzzles of 8 inches, and across the barrels of 13 inches, while it is 55 inches in length. It is provided with what is familiarly known as a "touchhole" in the breech, connecting with both barrels, so that it could be discharged by igniting a fuse if desired. The idea of the inventor was to connect the balls by a chain several feet in length, the ends of the chain being fastened into each by staples. Chain-shot was often used in naval battles to carry away the rigging of an enemy. It was discharged once after being built, but unfortunately one barrel for some reason did not "go off." The force of the explosion of the other barrel tore the chain from the ball which remained, and gave a curved motion to the projectile. As a result of this accident, it was considered too dangerous to adopt for use, and was stored away, finally being discovered only a few years ago in a shed. It was then mounted upon its present carriage, and placed in the park for an ornament.

## THE SANDSTONE QUARRIES OF OHIO.

BY W. FRANK M'CLURE.

The order of the three sandstone-producing States whose annual production exceeds in value \$1,000,000 has changed within the past year, according to figures recently compiled by the United States Geological Survey. Prior to this time New York held second place, with Pennsylvania third, but now Pennsylvania and New York have changed places. Ohio, the other of the three great sandstone States, is not only still in the lead, but the value of her product has shown a noticeable increase. Ohio's total production during the last

year was valued at \$2,576,723, exceeding that of Pennsylvania by \$513,641 and that of New York by \$1,245,396 and her increase over the preceding year is represented by \$343,127.

Ohio also holds an interesting place among the stone-producing territories of the world in that here are said to be located the largest sandstone quarries extant and from these quarries comes the bulk of all the whetstones and grindstones of the country. The value



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of her grindstone and whetstone product last year was \$577,543. It is this class of Ohio's stone product too that is more in demand than her rough stone.

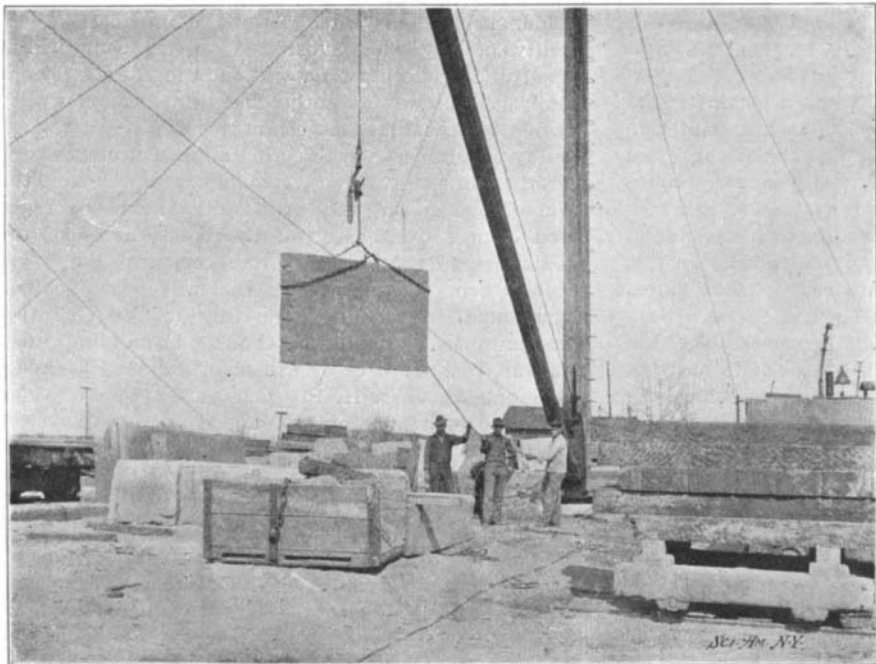
Of Ohio's great quarries the one at North Amherst is typical of the sandstone mining. The accompanying photographs are illustrative of a North Amherst quarry, and the claim has been made that this one is the largest. The average height of its walls is a little less than 125 feet, but in places a depth of 175 feet is attained. The circumference of this pit exceeds a mile and a half. To one who has never seen a quarry of huge dimensions a glance down from the edge of the

pit, or upward from a central point at the bottom, is a novelty, to say the least. The layers of stone are so distinct that they may be distinguished from one side of the quarry to the other. Another interesting feature is found in the different colors represented by the various strata. There are different qualities of sandstone to be found in the same pit; the kind used for whetstones or grindstones represents one stratum, while that used for building purposes represents another. Bluestone is a kind of sandstone; it is used for flagging and curbing. Sandstone, it will be recalled, is but sand more or less firmly united.

Like in the case of the coal mine many years are usually required to exhaust the supply. At North Amherst it is said to be more than thirty years since the great development of the quarries there was begun. Few rural sections witness the steady employment of as many men. A quarry of the size of the one illustrated often employs as many as 500. The operations in which these men engage are not in the main intricate, and yet, as in nearly all lines of industry, some skill is required in the different departments.

In the removal of sandstone the first operation consists in bringing to bear an even pressure at the bottom of a block of stone simultaneously with the work of piercing the upper surface in numerous places. Steam drills are used to pierce the upper surface, while the pressure at the bottom is maintained by means of wedges. The row of drill holes from the surface meets the wedge openings underneath. The second operation consists of sawing vertically from hole to hole. The saw used for this purpose is operated by steam power. When a block of the desired size is severed by means of the saws, it is hoisted by derricks.

About the tops of the cliffs at the surface of the ground the further work of preparing sandstone for the market progresses. It is here that the grindstones assume shape. The stone to be used for this purpose is transformed from its square shape to a more circular form. It is next placed upon a machine which causes it to revolve rapidly while the workmen ply their crowbars in perfecting its shape. The saws used in cutting the rough stones of large dimensions into smaller ones of various sizes are simply long strips of iron which swing back and forth in gangs, thus wearing their



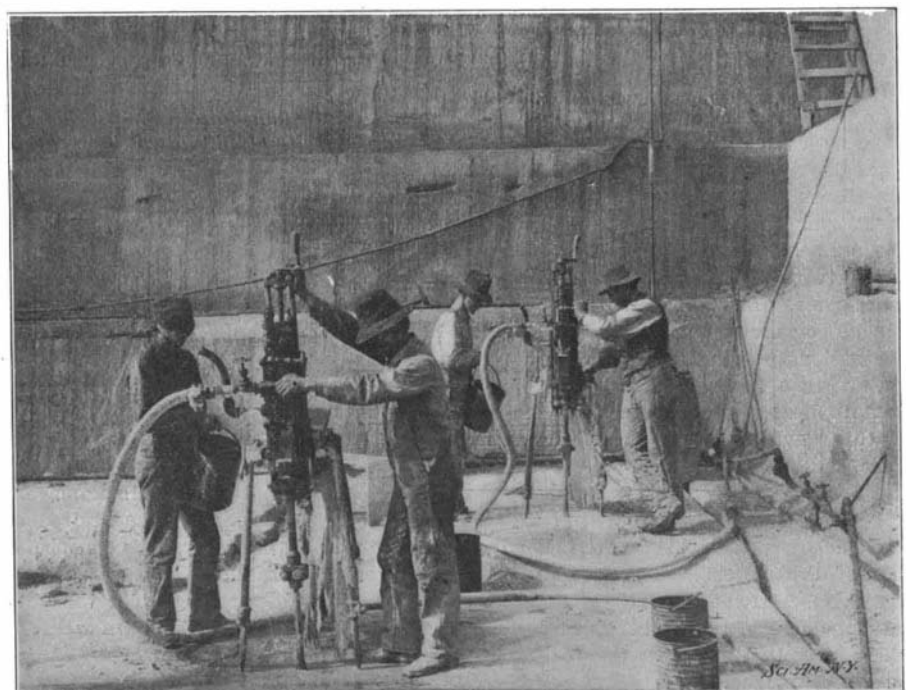
Lifting a Sandstone Block.



Sandstone Layers in an Ohio Quarry.



Sawing Sandstone by Machinery.



Drilling the Sandstone.

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