

Excerpt from Cobb's Creek in the Early Days of the Old Powder Mill  
By John W. Eckfeldt - Available on Smithsonian Internet Archive

The process of manufacturing gunpowder in the Nitre Hall Mills may be interesting.

First the charring of the wood was done in the willowhouse. The powder manufactured at this mill was used mostly for ordnance and blasting purposes. The action of such powder is less violent than that made from harder wood; and willow charcoal was preferably employed.

The willow sticks were cut small size, not over one to five inches in thickness. The wood was always prepared in the early spring when the sap began to flow, so that the bark might be peeled off easily. It was then placed in the seasoning house before charring.

We now come to the most important operation conducted in these mills. At the first mill at the head of the lane was done the refining and reducing of the component parts. The charcoal was first broken up separately by the stamping mill. The stamping mill was manipulated by a horizontal shaft several feet in length which ran a series of stampers. There were the same number of mortars or receptacles made of heavy oak planks several feet in diameter which received the stampers, being connected with the revolving shaft above.

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If necessary the crude sulphur was purified by melting, then run into cores. This, however, was not generally required. It was not sublimed as might be supposed to obtain a pure product. As made by this process it was apt to contain more free sulphurous acid and would not make a suitable gunpowder. In this mill the sulphur was broken up very finely by the stampers and was further pulverized by the same process as the charcoal by rolling or revolving in cast-iron cylinders or barrels, with brass balls.

The nitre received very little extra preparation unless impure through containing foreign matter, when it was dissolved and re-crystallized. It usually came in casks and was generally very pure.

At the time for incorporating the materials, the ingredients were mixed and further pulverized in a revolving iron barrel.

The next step was the grinding process. This was done in a strong frame under two heavy cast-iron wheels following each other in a cast-iron trough. Previous to this the powder was sprinkled with water.

For greater safety there was an established rule in this process not to allow too large an amount to be ground in this way

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for fear of an explosion. The limit was from forty to fifty pounds. It took from two to three hours to thoroughly incorporate the mixture.

From the grinding mill it went to the compressing house, where the necessary density was given to the mass. The product as it left this stage went to the milling machine. Here it was again broken up into a fine powder, which was passed between soft iron rolls set in a substantial frame. The powder was then spread out in layers about four inches thick, separated by copper plates, i. e., one layer above the other. These were placed under the powerful press, thereby reducing the thickness to about one inch.

The powder was then transferred to the first mill house where the graining was done. This was accomplished by passing the compressed cakes through fluted rolls and afterwards passing the broken up mass through sieves.

Following this came the glazing. This was accomplished in barrels by constant rolling or revolving for some time. This wore down the edges of the grains and gave them smoothness.

Finally, remaining moisture was dissipated, when the finished product was

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taken to the drying house, where the powder was spread out on shelves around a room heated by a furnace.

The dusting process was done with fine meshed sieves to relieve the grains of any fine powder which would lessen the value.

The powder was then ready to be placed in the kegs and stored in the magazine. As the kegs were filled and headed they were stamped "S. B." to show the approval of Samuel Bloom, the cooper who did the filling.

It must be remembered that at this early date the manufacture of gunpowder was accomplished under many difficulties. The lack of machinery forced upon the workmen much laborious work which is entirely overcome today by modern improvements.

Some of the machines and presses in this old mill were handled by the men with remarkable facility in view of the strength required.