Production of Black Powder

Ca. 1500

Ca. 1260: Roger Bacon Black Powder Recipe

The Franciscan Monk of Ilchester, England, (1214 - 1294) makes mention in his manuscript, “Opus Majus”, of the oldest known recipe in Europa for black powder at the time.

Firearms from this time are not known.

Making Charcoal

Ca. 1750: Charcoal Pile

This plate illustrates slightly different ways of building a charcoal furnace. In one case the wood is piled around a central pole; in the other a passage is left through the center of the heap.

These differences, however, are trivial. In all cases the furnace is “putting on the shirt”. This layer of earth holds combustion down to the minimum level so that the product will be charcoal instead of ashes.

Construction of a Charcoal Pile

Cross section view:

Core made with upright spruce trunks

Wood pile

Smoke roof made of leaves

Layer of Earth

Operation of a Charcoal Pile

Glowing embers is brought into the core of the charcoal pile.

Additional wood is put into the pile during the following days.

The charburner contols the color of the smoke: blue smoke indicates to much oxygen.

The burning has to be controlled by either making hole in the pile roof or by the sealing of these holes.

Operation of a Charcoal Pile (continuation)

The procedure continues for about two to four weeks.

The pile is removed as soon as the procedure is finished.

Burning charcoal has to be extinguished.

After the cool down the production of charcoal is finished.

Extraction of Sulfur

Sulfur

In nature, sulfur can be found as the pure element and as sulfide and sulfate minerals. Sulfur was needed to make black gunpowder.

On earth, elemental sulfur can be found near hot springs and volcanic regions in many parts of the world, especially along the Pacific Ring of Fire. Such volcanic deposits are currently mined in Indonesia, Chile, and Japan. Significant deposits of elemental sulfur also exist in salt domes along the coast of the Gulf of Mexico, and in evaporates in eastern Europe and western Asia.

Ca. 1550: Sulfur Distillation

Georgius Agricola, 1556

Raw sulphur is evaporated in a vacuum.

In a separate vessel, the sulphur gas is condensed at about 110 degrees Celsius.

The clean liquid sulphur is poured into molds and cooled down to solidify.

Extraction of Saltpeter

Ca. 1556: Cleaning of Saltpeter

Georgius Agricola, 1556

A mixture of plants containing nitrogen, liquid manure and alkaline compounds such as limestone are stored for three years.

The collected saltpeter is washed out and the created alkaline suds are boiled.

The created lime and magnesium saltpeter is converted to potassium nitrate by adding lye and potash.

Black Powder Manufacturing

Ca. 1500: Method for the Black Powder Production

“Pulverize charcoal and saltpeter.

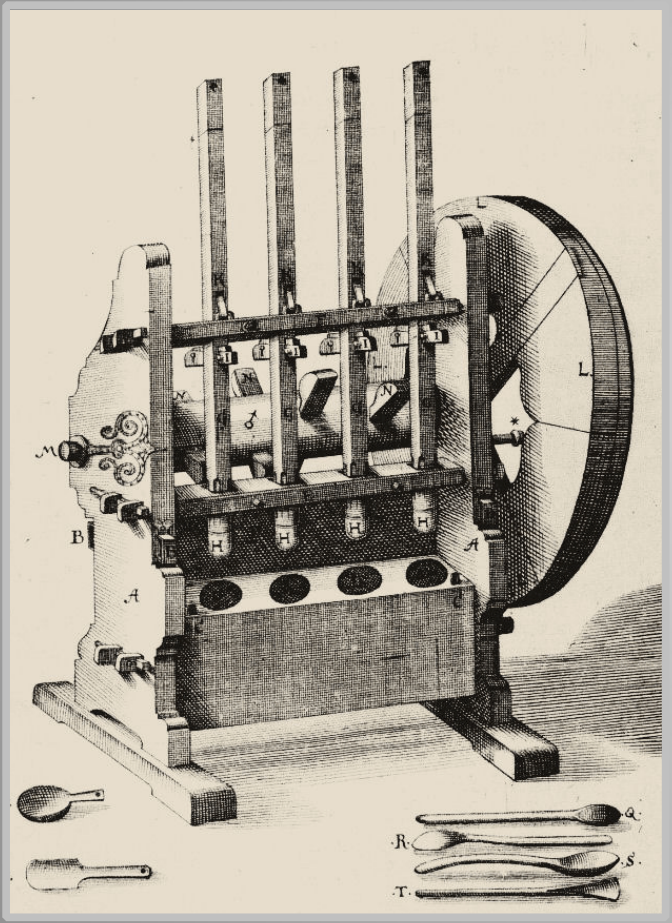
Fluidify five parts of sulfur by heating it carefully.

Stir in three parts of saltpeter and seven parts of charcoal into the sulfure.

Let this mixture dry and crush it with a wooden plunger into small parts.

Sort out the desired particle size with a sieve.”

Ca. 1620: Hand cranked Black Powder Mill



The wooden tappers are lifted with the cams on the driving axle.

Their own weight drops them onto the black powder lumps in the wooden barrels beneath the mill.

Joseph Furtenbach, Mannhafter, Kunstspiegel Augsburg, 1663

Ca. 1650: Sifting of the Black Powder

With sieves shaken by hand, the black powder from the powder mill is sorted according to grain size.

After further sorting by helpers, the powder is filled into special Containers.

Ca. 1760: Warehousing of Black Powder

The black powder has been sorted by the size of the grain.

It was stored in barrels in special magazines or powder towers .

Grain sizes:
- Coarsely ground for cannons
- Finely ground for firearms
- Finest ground as primer

End