HOMEMADE CANNON

By James Collins

My first engineering job at Airborne Instruments Labs in Long Island put me in contact with an engineering prototyping machine shop. I had completed an electrical engineering major at had received my degree for Manhattan college but had not worked in any of the mechanical laboratories. This was in 1958 and all of the terms and conditions of the present safety programs were different. I had free access to many powerful machines and given little or no instruction as they assumed you knew it all. I was fascinated with the machine lathe as I had never encountered one previously. So I decided on a small project to give me the basic hands-on experience. I decided to build a cannon. Now do not get excited this was not a full-size project rather a very small model. In fact, the cannon is only one and a half inches long and 3/8 inch in diameter. It sits easily in the palm of your hand.

The body of the cannon consisted of a single piece of brass about a half inch in diameter. Placed in a lathe, the shape developed using cutting tools along the side of the cannon. I drilled the bore out using a holding fixture mounted on a drill press. The cannon was mounted in its own frame which was a small piece of brass in the shape of a square, folded over on two sides and then cut off simulating an old ship mounted cannon. A hole was bored through the body of the cannon side to side, missing the bore to allow a pivot pin. Then holes were drilled through the body for two axles with little scale modeled wheels were incorporated. The barrel was loaded with several grains of black gunpowder, followed by a little paper wad, followed by a number six buckshot. The fuses arrived by mail order from Italy. My brother and I would load the cannon and fire it along the 35-foot hallway in our third floor apartment in the Bronx. The recall would drive the cannon on its wheels about 15 feet after the ignition. Because of all the racket in the streets, the firecracker like sound was barely heard. We had lots of fun until eventually our supply of black powder ran out and we had difficulty finding another old shotgun shell with that precious material. The gunpowder used in modern shotgun shells was much more powerful and larger in particle size. We decided that we would have to manufacture our own gunpowder.

I had a mortar and pestle from my chemistry days which we plan to use to mix and the materials. We had to obtain carbon, sulfur and saltpeter, the main elements of black powder. In New York City, you can obtain anything.

My brother Don took on the task of mixing the materials to the correct proportions and then took the mixture with the mortar and pestle out into the stairwell of the apartment house. The steps were marble and this was a firm base on which to do grinding. Don laid out his material in an orderly fashion keeping a good distance between each of the chemical elements. One at a time, he took each of the chemicals and worked on them

separately. First, he worked with the carbon placed it into the mortar. Then he carefully inserted the pestle and firmly started to pound the element into a fine mixture. He then poured the carbon into its own little holder, cleaned out the mortar and went to the next material.

Finally, each of the three chemicals was a fine powder and each had their own separate container. Don carefully cleaned out the mortar and went to the last step of the manufacture. He then measured each of the required proportions of the three elements and added them into the mortar. Now all he had to do was mix them together until they became uniform and he would have created the necessary black gunpowder.

Don was mixing the three ingredients with the pestle and apparently met the correct mixture for the gunpowder when it exploded,

BANG

The explosion blew Don back and luckily, he was not looking down into the mortar when it went off. However, he had lost his eyelashes, his eyebrows and his black face made him look like an old-time minstrel player. Luckily, he sustained no injuries other than the cosmetics, which passed in about a month.

The one lesson learned from the manufacturing process was that if you are going to mix black gunpowder you must do it while it is wet so that no spark or pressure will generate the necessary heat to ignite it. All your grinding has to be done while the material is wet and once it is mixed you let it dry out and then it re-acquires its potency.

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