Benjamin Banneker and His Marvelous Clock

By

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Benjamin Banneker was a man with a curious mind and a really keen eye. If you do the research, you'll find that much has been said over the years about the amazing clock he made back in his younger days. Some will even go so far as to say that his clock was the first clock ever made in America! These folks even like to say that he did all this without ever having laid his eyes on a real clock, instead using a small pocket watch as a guide. Those are certainly lofty claims and some of those stories are true. He did, in fact, build himself a clock, but wouldn't have been fun to have been a fly on the wall to see just how he did it? Well, read on as I tell you exactly how Benjamin Banneker made his marvelous clock.

I remember the day Benjamin came home with that pocket watch, so that part of the story is absolutely true. Back then only wealthy people could afford to own a watch. Benjamin, as a poor farmer could never have afforded to own a clock, much less a pocket watch. He kept track of time by relying on the movement of the sun across the sky.

Now this particular pocket watch belonged to a fellow by the name of Arthur Ellicott. You may recognize the Ellicott name as belonging to the family who built the mills not far from Benjamin's home in what was, at the time, Baltimore County, Maryland. Arthur had come to these parts from Pennsylvania and liked the area so much that he decided to build himself a little cabin near where Benjamin lived; and that is how they came to be friends.

The story some folks swear as true is that Benjamin borrowed the watch to study how it worked and then made his own clock. The fact is that it was Arthur who came up with the idea for Benjamin to pattern a clock after his pocket watch. Arthur knew all about building clocks from having worked for his father, a clockmaker, back home in Bucks County, Pennsylvania. Arthur and Benjamin agreed that it would be a fun thing to try and build a big clock using a small pocket watch as a guide!

I really don't understand why the story of Benjamin making a clock patterned after a watch is now thought of as the most astounding feat of its day. It really wasn't too hard for them to do. Benjamin simply studied the watch before taking it apart to understand how it worked, and then once he had it in pieces, he drew a detailed picture of each part. There were fourteen drawings in all showing the gears and levers, hands and such. Benjamin and Arthur would often have long conversations about such things as what size to make his clock, the amount of weight that would be needed to make the it run, and how to position the 'gearing', meaning how the teeth of one wheel should interact with the teeth of another wheel.

Working now and again as time permitted because the chores of the farming seasons required his attention, it took nearly two years for Benjamin to make his clock. He started by enlarging his drawings of Arthur's watch using a simple grid technique. Over top of the smaller watch part drawings, Benjamin drew a series of perpendicular lines that crossed each other and

then used those lines to make a larger corresponding grid to lay out the bigger clock parts. Once he had made the full-size patterns of all the parts, it was finally time to start building his clock!

Nowadays the clock dials, hands, gears and levers are made from steel, brass and silver but back when Benjamin was planning out his clock, brass and silver, were expensive and hard to get in our neck of the woods. There were, however, plenty of trees around but the question was, which would be the best to use to make a clock? Arthur explained to Benjamin that quarter sawn white oak was his father's wood of choice to make the large flat boards used to hold the gears in place. Known as the 'plates', white oak is a strong wood with a straight grain that doesn't expand and contract as much as other woods. Maple was used for making the gears because of its strength and tight grain, while the oily nature of Black Walnut is suitable for the 'bushings' of the clock's pivot holes. This is where the ends of the gears rotate in the plates.

I think the most interesting part of the whole project is that Benjamin wanted his clock to strike the hour. He had admired the sound of a striking clock he once heard while in Baltimore City and he wanted his clock to strike the hour, too. The problem was that Arthur's pocket watch didn't strike and Benjamin had no idea how he could make his clock ring the hour. With Arthur's help, Benjamin came up with a modified design that used a second set of gears that would raise a hammer to beat against a bell and count out the number of strikes for the hour.

The retelling of this makes it all sound so simple, but as it can oftentimes be, one idea only leads to another greater challenge. In this case, making a wooden hammer hit another wooden object would not be very loud or sound very pretty and Benjamin wanted his clock to have a distinct "ting!" Metal would have to be used so he found an old chisel, sharpened so many times over the years that it was hardly usable. He decided that it could be made into the clock bell and the little hammer head that would strike it. Describing the shape and thickness of each to Pfeiffer, the local blacksmith, Benjamin traded a half-bushel of tobacco for the work Pfeiffer put in to make the two pieces.

Once the clock gears were all made and the movement put together, Benjamin designed the case. His was to be a wall clock which is essentially a wooden box with an access door in the back and an opening in the top where the hammer reached up to make contact with the top-mounted bell. The bottom of the case was left open to allow for the weight to hang below on a cord and for the pendulum to swing back and forth. The weight works with gravity to make the potential energy necessary to power the clock, while the swing of the pendulum, together with a specific gear, releases that energy to make the clock run. The weight drops throughout the day so that by the end of the day, the act of raising the weight back to the top is exactly the same as when one winds a watch every day to keep it running.

I have to say that the clock was pretty amazing when it was finally finished and proudly hanging on the wall. The gentle, hypnotic swing of the

pendulum's back and forth motion, the crisp ting when the hammer struck against the bell as the clock counted out the hours, and even the pretty blue color that Benjamin painted the clock, had folks coming from miles around to see his marvelous creation.

Did Benjamin Banneker make the first clock in America as the folk lore goes? Nah, clocks were being made in Philadelphia way before Benjamin made his clock. Was his the first clock to be made in Maryland? I beg not as another Benjamin by the name of Chandlee was making clocks in Nottingham, north of Baltimore City, by the 1750s. But, in truth, an untaught African American fellow named Benjamin, making a clock primarily from local materials is a far more interesting story than any other tales you may have heard.

How do I know these things to be true? Well, it's quite simple you see, for I WAS that fly on the wall who watched exactly how Benjamin Banneker made his marvelous clock. I am so happy that Benjamin did not decide to make a fly swatter first!