History on the Rocks: Gadsby's Historic Ice Well

Numbers and Geek Stuff

For our first Science Geek post, you will hear from the Museum Team and then Science Geek Danny will throw some fun facts and numbers your way. Get your pencil and paper ready for higher math!

The ice well melt team of Danny Smith, Liz Williams, and Gretchen Bulova

So for this project, Gretchen and I channeled our inner Founding Fathers for inspiration, information, and the basics on ice preservation. It came down to three areas:

Temperature

Thomas Jefferson and many other Founding Fathers kept meticulous records of the weather. We will be doing the same, but only temperature. From now on, blogs will begin with a) the temperature outside (based on the Weather Channel) and then b) the temperature inside the ice well. So far, here is a snapshot of the temperatures since we started.

Temps	Outside	Inside
Friday	76˚	47˚
Saturday	59˚	42˚
Sunday	49˚	42˚
Monday	54˚	41˚
Tuesday	37˚	41˚
Wednesday	46˚	41˚

Trying to find the temperature in 1805 has been kind of a challenge to compare now to then, and this is not the platform to start a global warming/climate change debate but needless to say, I doubt John Gadsby had to deal with a February day that was 76 degrees!

The Ice Structure Itself

George Washington built his ice well at Mount Vernon based on advice from his friend Robert Morris. Washington lived at the Morris residence while in Philadelphia during his presidency between 1790-1797. This is how Morris suggested you handle your ice:

> *In the Bottom of the Ice House I placed some Blocks of Wood about two foot long and on these I laid a Plat form of Common Fence Rails close enough to hold the Ice open enough to let the Water pass through, thus the Ice lays two foot from [above] the Gravel and of Course gives room for the Water to soak away gradually without being in contact with the Ice, which if it was for any time would waste it amazingly.*
>
> *I find it best to fill with Ice which as it is put in should be broke into small pieces and pounded down with heavy Clubs or Battons such as Pavers use, if well beat it will after a while consolidate into one solid mass and require to be cut out with a Chizell or Axe. I tried Snow one year and lost it in June.*

Milk crates are being used to elevate the ice mound with a drip pan rigged up with hoses to siphon off the melting water. We chose not to go the "pounded down with heavy Clubs" route to create a large ice blob, but instead created an individual layer which was also a common practice.

The ice mound structure

Insulation

To protect the ice, we are using straw and wood shavings to provide the insulation. We know straw was used by Morris in a variety of ways in his well and Thomas Jefferson used straw and wood shavings based on his notes of the day (A future blog post will talk more in-depth on Mr. Jefferson's ice well). Suffice to say due to cost and shear practicality, we covered the mound as much as we two Museum chics could handle.

Now a word from our Science Geek:

This is all great ladies, however let's look at some facts:

- We received 126 ice blocks weighing 50 pounds each. Each block is made of 6.25 gallons of water. That means we have 787.5 gallons of water.
- 48 gallons of water have been removed as of yesterday. So 6% of the total amount of water has already melted away. [interject Museum chics: we are using a very scientific kitty litter container to remove water from the well each day. No need for us to go to the gym during this project.]
- The ice well is adjacent to the kitchen of Gadsby's Tavern Restaurant which emits HEAT. This does not bode well for the mounds longevity.
- The glass cut-away created in the 1970s lets in sunlight and also leaks so that means the seals are deteriorating, letting in air. Not good for ice preservation.

The very scientific kitty litter water container

So there you have it. Let all the number crunchers begin with this information and we look forward to seeing your guesses soon. Purchase your tickets today!