

Three Barrel Wells of Mobile County, Alabama

By Sarah Mattics

Barrel Wells – A Brief Overview:

Barrel wells typically consist of a well shaft lined with wooden barrels. The barrels are often stacked several high. To create a well shaft, the barrels have had their ends knocked out, so that when the barrels are joined end-to-end they form a hollow wooden column. The walls of the barrels brace the well shaft, preventing collapse, much the way other, more conventional building methods would. This construction technique is particularly useful in sandy, wet soils, and seems like it would be well-suited to a region with a shallow water table such as Mobile County, Alabama. In a practical sense, it's also a technique that lends itself to the small homestead, since such a well could readily be constructed with simple tools, without specialized knowledge, and could feasibly be completed in a few days. Certainly it would be much less costly and need less technical expertise than constructing a brick-lined well.

However, barrel wells are a feature type rarely found in Mobile County, and have only turned up in Colonial contexts. Likely, despite the previously mentioned advantages, barrel wells are fundamentally maladaptive to the local geology, and even in Colonial times better solutions were quickly found. A few archaeological sites in the region have been found to have barrel well features: 1MB221 (Port Dauphin), and on two neighboring sites in Downtown Mobile: 1MB510 and 1MB513.

Runoff from animal husbandry, poor public sanitation practices that might encourage the spread of diseases such as cholera that spread through human fecal contamination of water sources, and a known phenomenon in the downtown Mobile area of brackish water from the Mobile Bay intruding into the shallow water table during times of higher demand (during which water is withdrawn from the aquifer via wells and pumping, and not replenished quickly enough by rain,) might lead to the water from a shallow well suffering from deteriorating taste and quality (Robinson, Powell and Brown, 1956, Pg. 45).

A Brief History of Water in Mobile, Alabama:

In 1711, French Colonists who had originally settled at the site that is now called 'Old Mobile', the original seat of capital of French Louisiana at Twenty Seven Mile Bluff relocated to the mouth of the Mobile River, where the river flows into Mobile Bay. One priority for the colonists was finding an uncontaminated, tasty, convenient source of water.

The northern portion of Mobile Bay is formed by the confluence of the Mobile River and the Tensaw River which forms an estuary. Mobile Bay is brackish and somewhat tidal, with varying salt levels in the Mobile River depending on the time of the year, since this was driven by seasonal rain.

"The Mobile River has an estimated average flow of 60,000 cubic feet per second (cfs), or about 39,000 million gallons per day (mgd). It is the largest single source of water...Salt water moving up the Mobile River from Mobile Bay during periods of low river flow, however, limits the use of that stream as a source of supply...The water resources in the Mobile area are: (1) the Mobile River, which has the source of most of its water far from Mobile and is not dependent upon local precipitation or ground-water storage; (2)

local streams, which are directly dependent upon local precipitation and ground-water storage; and (3) the local ground-water reservoirs themselves.” (Robinson, Powell and Brown, 1956, Pg. 1-6).

The new location of Mobile had a shallow water table, and while the water might have been of a significantly better and more consistent quality than the water flowing down the Mobile River, it was particularly vulnerable to contamination and also seasonal ingress of salt water backwashing from the Mobile Bay into the shallow ground water table (Robinson, Powell and Brown, 1956, Pg. 45).

“For the Nation as a whole, the chemical and biological character of ground water is acceptable for most uses. The quality of ground water in some parts of the country, particularly shallow ground water, is changing as a result of human activities. Ground water is less susceptible to bacterial pollution than surface water because the soil and rocks through which ground water flows screen out most of the bacterial. Bacteria, however, occasionally find their way into ground water, sometimes in dangerously high concentrations...” (How Ground Water Occurs https://pubs.usgs.gov/gip/gw/how_a.html)



Map Courtesy of Raven Christopher



Faience plate found in Feature 372 at 1MB513

1MB221 (Dauphin Island):

In 1997, the Center for Archaeological Studies conducted excavations at the location of one possible structure at the Village of Port Dauphin (1MB221) – an area that was threatened by the ongoing development of residential housing. During these excavations, a barrel well feature was uncovered.

Port Dauphin, the first French settlement in Alabama, was occupied from 1702 to around 1724 (Shorter et al, 1997).

“Dauphin Island occupies an unusual position in early eighteenth century French Colonial efforts along the Gulf coast. Its function is unique compared to most other colonial settlements in that it served as a support facility to the main colony upriver, Mobile...The French colonists, though small in numbers, were a diverse group including soldiers, artisans, Canadians voyagers, and government officials.” (Shorter et al, 1998).

It is believed that there weren't many settlers on Dauphin Island before 1708. After 1708, more people moved into the region as to provide support to the ships loading and unloading goods there.

The barrel well uncovered at the Port Dauphin Village site (Feature 114) was located near the archaeological remains of a possible structure. The well was quite small and shallow, and may have only served a few people. The well shaft was a mere 40cm in diameter, and so was the smallest of the three discussed here. It tapped into the shallow water table of the island:

“Where an offshore island is underlain by permeable sediments and the ground water recharge is from rainfall, ground water percolates laterally towards the shore and mingles with the saline water of the sea. On such small islands fresh water usually occurs at an elevation slightly above mean sea level and the islands are found to contain a dome-shaped lens of fresh water underlain by a concave surface of saline water. The fresh water floats on the saline water because its density is lower (Alverson, 1973, pg. 6.)



Ashley Dumas trowels Feature 144 at 1MB221



Dr. Gregory Waselkov excavates Feature 144 at 1MB221

1MB510:

Like the 1MB221 barrel well, the barrel well found at 1MB510 was found near the archaeological remains of a structure.

“The barrel well (Feature 69) was found on the west side of the deeper basin part of the Feature 52 structure. Based on location and artifact content, the well was in use during occupation of the structure (see Figure 4-7). The well consisted of two stacked wooden barrels, both missing tops and bottoms, creating a well shaft to access groundwater (Figure 4-14). A large builder’s pit was dug for placement of the barrels into subsoil. The stain of the builder’s pit for the barrel well was defined at about 75.0 cm below the current ground surface, below recent II. The builder’s pit was oval in shape, measuring about 1.35 by 1.95 m across and over 55.0 cm deep. The bottom of the barrel well was about 1.3 meters below the stripped surface where it was first defined.” (Gums and Waselkov, 2015).

The 1MB510 barrel well shaft was filled with water-sorted black sand, as was the surrounding builder’s pit. Only a few artifacts were found in the barrel well, indicating that it was probably not used for trash disposal after its abandonment, but possibly might have filled with sand due to natural processes. Unlike the features at 1MB513 and 1MB221, this barrel well had a few surviving metal hoops left from one of its barrels. Another barrel – the most deeply-buried and the best preserved one – was bound with split wood hoops. That barrel also featured a bung hole, indicating it had originally been used to store liquid.

“Those artifacts present do date to the late colonial period, the same period as the Feature 52 structure. Native American pottery includes 17 plain sherds, three red-filmed sherds, one burnished black sherd, and two sherdlets. European ceramics include one British delft, two plain tin-glazed, and three creamware sherds. Other artifacts include 11 fragments of olive green bottle glass and one aqua shard, one white clay pipe fragment, one Rupert shot, and three corroded nails. A small amount of debris (68.0 g), including wood and wood charcoal and burned clay, were also found in Feature 69.” (Gums and Waselkov, 2015)



Two views of Feature 69 at 1MB510

1MB513:

Feature 372 was a newly discovered barrel well at site 1MB513. It presented initially as a dark oval stain about 165cm by about 145cm, revealed during mechanical stripping. The central portion of the stain showed evidence of burning, including large pieces of charcoal. Colonial-era artifacts such as faience sherds were obvious on the surface. Upon excavation, the feature was revealed to be a column of many slumped-in moderately well-defined layers of feature fill. At the water table, about 94cm below the stripped surface, the bottom edge of the rotten barrel became evident as curving stains in the sand on the lower, outer edge of the feature fill. Below that, surviving fibers from the rotten barrel staves could be observed. Colonial-era artifacts continued sparsely to the water table. At that point, hand-excavation became too difficult, and mechanical excavation was employed – the remains of a partially-rotted barrel were pulled up in pieces.



South profile of Feature 372 at 1MB513 showing the extent of the feature from the ground surface down to the water table



Faience plate found broken in half in the upper portion of Feature 372

The abundant nature of the artifacts indicates that, unlike the other barrel wells found at 1MB510 and 1MB221, after abandonment this well was used as a receptacle for household trash. Also, the filling/abandonment phase of the feature may have been fairly brief.

The analysis of the artifacts retrieved from this feature is still in its preliminary stages but promises to offer interesting insights. Why was this well abandoned? What was the household it served like? Was the well abandonment related to water quality, sickness in the household, or did the owners get access to better quality water? How long was the well in use?

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