CRL Report 6: Conservation of the Fairfield Union field cannon

Fairfield County, Texas Project
Texas Historical Commission

Each year, the Conservation Research Laboratory conserves material from a number of different archaeological projects. The purpose of these CRL reports is to showcase the conservation procedures used to treat some of the more interesting archaeological material. The conservation of a Union cannon, now displayed in the Fairfield County courthouse yard, is presented in this report.

CONSERVATION OF THE FAIRFIELD UNION FIELD CANNON

This 3-lb. field cannon was captured by Confederate forces at the Battle of Mansfield, Louisiana, and brought to Texas, where it was buried near Fairfield. When Grover Cleveland was elected president in 1885, the cannon was dug up and fired at the inaugural celebrations. In fact, the cannon gun has played a prominent role in 4th of July celebrations for decades in Fairfield County and was fired until recently. It was brought to CRL, since it was badly in need of repair after decades of being displayed on the courthouse lawn in Fairfield. The bore of the gun had collected an array of pecan shells, cigarette butts, gum, leaves, rain water, and other assorted material. The metal had corroded and its paint was flaking off.

Conservators at CRL first removed all of the gun's loose corrosion products through electrolytic reduction, using a 2 percent sodium hydroxide / tap water solution as the electrolyte. This procedure also removed all traces of the remaining paint, as well as any aggressive anions such as chloride that might have been in the corrosion products. The tap water in the solution was soon replaced with rain water, which itself was shortly thereafter replaced with reverse osmosis water. De-ionized water was used for the last batch of electrolyte.

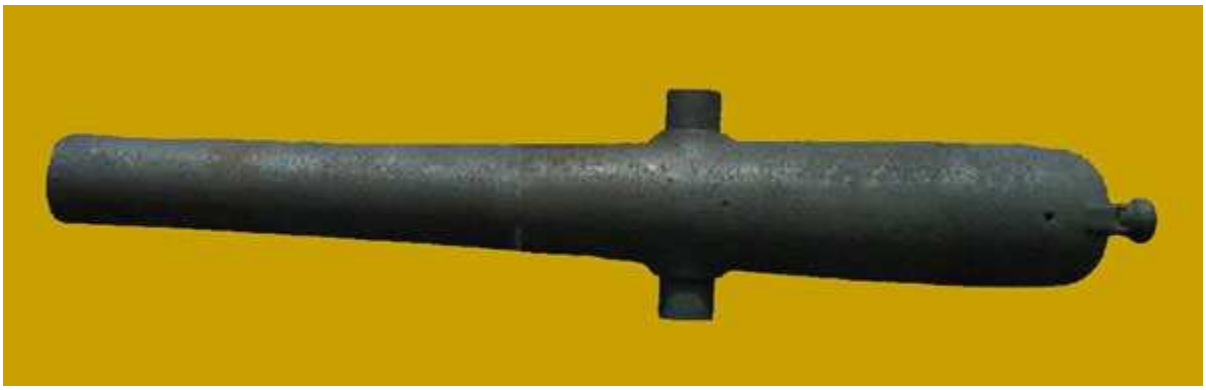
Upon removal from electrolysis, the cannon was thoroughly rinsed in several baths of boiling de-ionized water. It was then completely painted with a 10 percent tannic acid solution. Tannic acid reacts with the surface of iron and converts it to ferric tannate, which makes the metal more corrosion-resistant and gives it an aesthetically pleasing black color. It is necessary to put on three coats of tannic acid, allowing it to thoroughly oxidize between the coats.

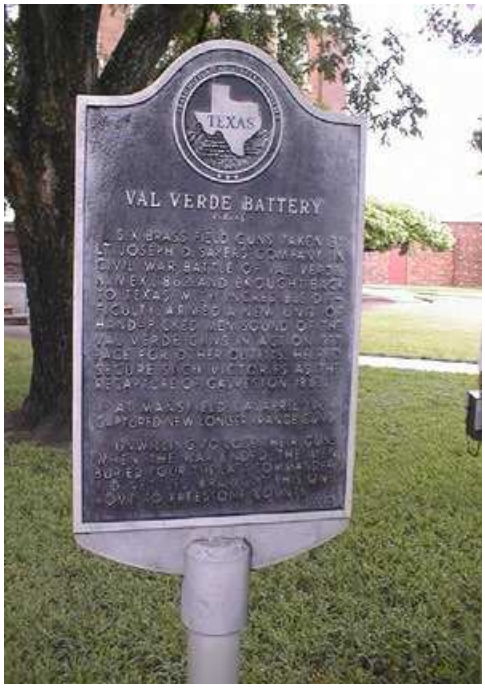
After applying the tannic acid, the cannon was sealed from the oxygen and moisture of the atmosphere by coating it with melted microcrystaline wax. The wax was heated to a temperature of 350 degrees F, which is well above the boiling point of water; this removed any water that might have been present. The wax was then cooled to approximately 200 degrees F, whereupon the cannon was removed; any excess wax adhering to its surfaces were wiped off with rags. The gun was then left to cool.

Since the cannon woulld continue to be displayed outside under a cover on the courthouse yard, a final wax sealant was deemed not to be suitable. In the heat of the Texas sun, the wax can become tacky and attract dust. As such, the gun was sealed by painting it with a coat of polyurethane. A second coat of polyurethane with graphite added to it for a more matte coloration was also applied. For large iron objects that are to be stored outside, polyurethane is an alternative to microcrystalline wax.

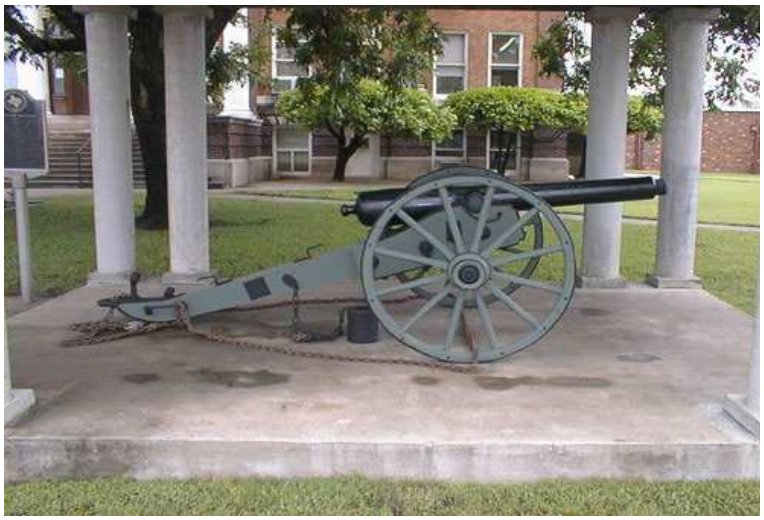
Cannon bores are always subject to the most corrosion, since they capture and hold moisture. The bore of the Fairfield cannon was filled with microcrystalline wax to just below the muzzle. The wax can be easily removed if necessary, and in the meantime, it affords the gun with maximum protection.

The Fairfield cannon is shown below after it was conserved.





A Texas Historical Marker, giving details on the history of the cannon.



The conserved cannon on a reconstructed gun carriage back on display in a place of prominence on the Fairfield County courthouse yard. The conservation treatment will ensure that it stays in good condition for years to come.

Citation Information:

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1998, Conservation of the Fairfield Union Field Cannon, Conservation Research Laboratory Research Report #6, World Wide Web, URL, http://nautarch.tamu.edu/CRL/Report6/union.htm, Nautical Archaeology Program, Texas A&M University.

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