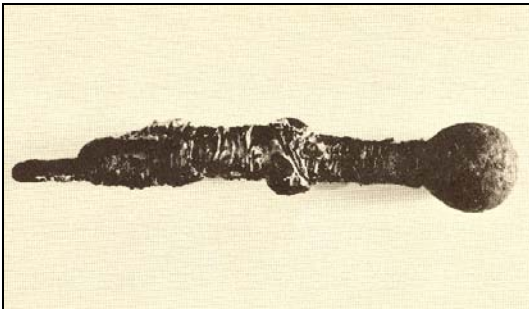


REMARKABLE *ATOCHA* AMMUNITION EMERGES FROM LABORATORY

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The recent cleaning and conservation of a well-preserved piece of ammunition recovered from the site of *Nuestra Señora de Atocha* has expanded an understanding of how shipboard ordnance was employed in 1622. It is known from contemporary documents that twenty bronze cannon of varying sizes were onboard the galleon when she sailed for her final voyage and in the period from 1975 to 1984, ten of these guns were recovered by Treasure Salvors, Inc. The various diameters of the bores suggest they could have fired solid iron balls of six, ten or sixteen pounds and a number of such shot have been recovered from the wrecksite to confirm this. Though these basic round, iron "cannonballs" were the most common, finds like the recent example show that they were not the only type of projectile used onboard this galleon.



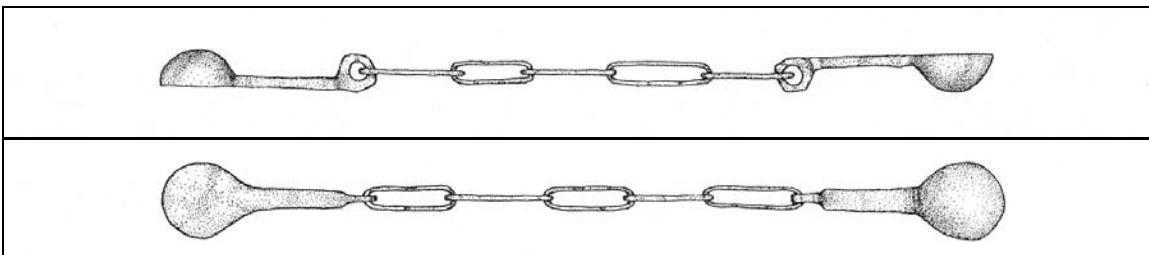
The bound shot as it was ready to be fired
Photo Dylan Kibler/MFMHS

Judging from the variety of design and function of these shot, the early 17th-century was a period of experimentation with the intent being to increase the efficiency of ordnance by customizing projectiles for specific objectives. In addition to solid, iron ball-shot there is stone ball-shot, spike-shot (spikes protrude from opposing sides of a solid ball), bar-shot (two

solid balls joined by an iron bar), sliding bar-shot (two balls joined by two bars which could expand to twice the length of regular bar shot), grape-shot (multiple small balls bound around a wooden spool), langrage (ca. 1" cubes of iron), jointed-shot (two hemispheres, each with an extension linked to the other), variously-shaped, small lead-shot, and chain-shot. This variety of ammunition allowed the gunners to deliver heavy, punching blows to the enemy, throw a projectile with a broader area of destruction, or use the cannon as large shotguns, depending on their objectives.

The piece under discussion here is an excellent example of chain-shot with two wrought-iron hemispheres and their extending arms joined by five links of chain. It was found in its ready-to-fire form with the faces of the hemispheres joined to form a ball and the arms and chain doubled, then bound and splinted to keep them rigid and straight. This would make the shot easy to load and prevent any jamming within the narrow confines of the bore. The twine binding would have burned away upon firing and the piece could have then opened and become a whirling mass with a wide swath and much more effective at hitting a tricky target, such as rigging, than a single ball could ever be.

The shot weighs 3.42 kg (7.54 lb) and, when fully expanded, has a length of 90.5 cm (35.6"). The two hemispheres fit to form a ball of 8 cm (3.15"). The twine binding was in poor condition and could not be saved in its original context, but photographs were taken of various aspects of the piece as the cleaning and removal of concretion progressed. After electrolytic reduction treatment the iron components are found to be in excellent condition and can easily be re-splinted and bound with modern materials analogous to the originals.



Two views of the fully-expanded chain-shot
Drawing Robert Cummings/MFMHS