commanders that artillery was best employed when its firepower could be massed.

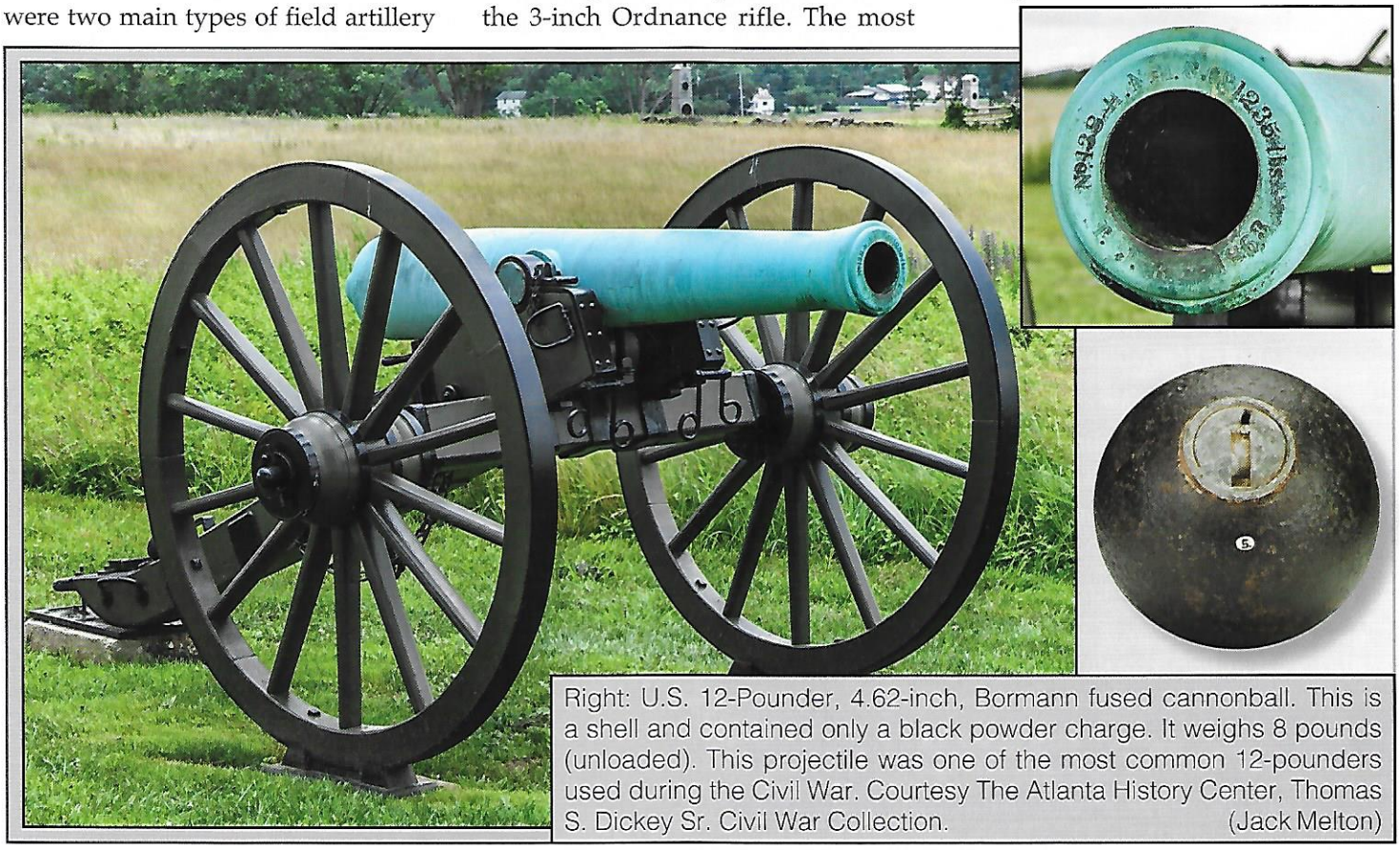
The basic unit remained the battery, usually six guns, commanded by a captain. Whenever possible, all guns in a battery were the same type, simplifying training, ammunition supply, and logistics. Each gun, or piece, was operated by an eight man gun crew, plus four additional men to handle the horses and equipment. Two guns operating under the control of a lieutenant were a section.

One artillery brigade composed of five batteries, commanded by a colonel, supported each infantry corps. Five brigades of four batteries formed the army's Artillery Reserve, under a brigadier general. This organizational structure allowed each corps commander to use his own artillery as required to support his infantry, but still maintained a flexible, powerful reserve force to back up multiple corps if needed.[10]

At the outbreak of the war, there were two main types of field artillery pieces in the Union and Confederate armies. Bronze smoothbores were the most common. They were designated by the weight of the round they fired, the 12-Pdr. being the most numerous, although some 6 and 24-pounders were in both armies. Commonly referred to as a Napoleon, the 12-Pdr. was easy to make and use, and was the workhorse of most artillery batteries when the war began. The Napoleon had an effective range of about 1,600 yards.

Rifled field artillery began appearing in large numbers beginning in 1861. The use of wrought or cast iron allowed their barrels to be cut with spiral grooves, the rifling, which imparted a spin on the projectile and increased the gun's range and accuracy. The most common models were Robert Parrott's 10-Pdr. Parrott rifles, although some 20-Pdr. Parrotts were in both armies. 10-Pdr. Parrott rifles were accurate out to 1,900 yards. The most common rifled piece, and the most preferred by both sides, was the 3-inch Ordnance rifle. The most widely used rifled gun during the war, it was extremely durable with exceptional accuracy, reaching about 1,850 yards. Produced by the Phoenix Iron Company of Phoenixville, Penn., the gun was made of hammer-welded, formed, machined iron that rarely fractured. The gun was 400 pounds lighter than the Napoleon and 100 pounds lighter than the Parrott with a barrel that was 6 inches shorter, making it easier to move. At Gettysburg, 87% of the artillery pieces brought by both armies were either 12-Pdr. Napoleons, 10-Pdr. Parrotts, or 3-inch rifles.

Regardless of gun type, each piece came with a two-wheeled limber, or ammunition chest. The guns were hooked to the bottom of the limber and both were pulled by a team of six horses. A two-wheeled caisson, consisting of a reserve ammunition chest and spare equipment pulled by another limber, accompanied each piece. Caissons were usually held behind the firing line.



Right: U.S. 12-Pounder, 4.62-inch, Bormann fused cannonball. This is a shell and contained only a black powder charge. It weighs 8 pounds (unloaded). This projectile was one of the most common 12-pounders used during the Civil War. Courtesy The Atlanta History Center, Thomas S. Dickey Sr. Civil War Collection. (Jack Melton)

U.S. 12-Pdr., 4.62-inch, Napoleon smoothbore cannon, no. 138, cast in 1863 by Henry N. Hooper & Company, inspected by Thomas J. Rodman; the tube weighs 1,235 pounds. Located on the Gettysburg Battlefield. (Jack Melton)