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# The Historic Guns of Forts Sumter and Moultrie

Mike Ryan

May 1997

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This work would not have been possible without the help of others. For her help and patience, I would like to thank Ann Childress, Chief of Visitor Services at Fort Sumter National Monument. For their insights and encouragement, thanks are also due to the research staffs at the National Archives, the Naval Historical Center at the Washington Navy Yard, and the South Carolina Historical Society. Their enthusiastic assistance will not be forgotten.

A special word of thanks goes to two of the leading authorities on Civil War artillery, Wayne E. Stark of Baden, Pennsylvania and David E. Pierce of Chesapeake, Virginia. Much of the information pertaining to model types, the number of guns produced in a class, and the known surviving examples have come from Wayne and his extensive research. Perhaps the greatest pleasure in conducting a study such as this is the opportunity to work with the very best. To Wayne and David I once again offer my thanks, and to you this work is dedicated.

Mike Ryan

# Chapter One

# The Guns of Fort Moultrie

| | |
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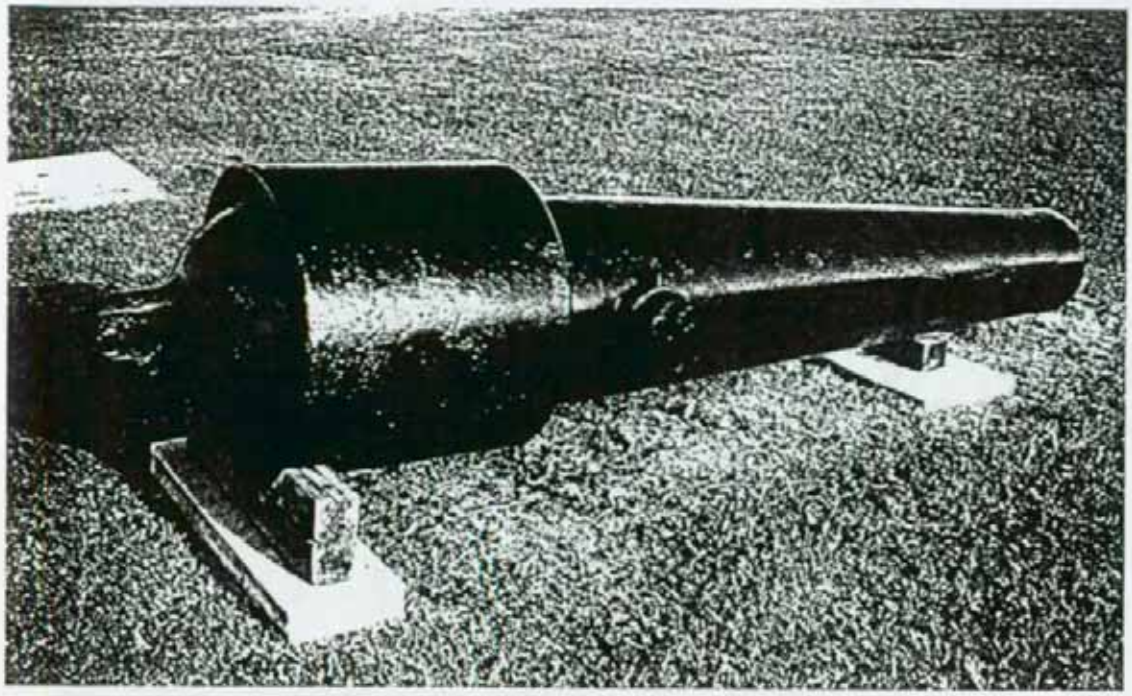
# 10-inch Parrott

M-1



**Common name:** 10-inch Parrott
**Identification:** Parrott, 10-inch, rifle, seacoast, Model 1862
**Other names used:** 300-pounder Parrott; 250-pounder Parrott
**Place of manufacture:** West Point Foundry, Cold Spring, New York
**Material:** cast iron tube; wrought iron reinforcing jacket

PRINCIPLE DIMENSIONS

**Length:** 177 inches **Weight:** 26,900 pounds
**Bore diameter:** 10 inches **Bore length:** 140.75 inches **Caliber of gun:** 14.1*
**Rifling:** 15 x 15, straight, with right gaining twist **Weight of gun to shot:** 107.6 **
**Length of jacket:** 36 inches **Thickness of jacket:** 5 inches
**Trunnion diameter:** 10 inches **Trunnion length:** 4.5 inches

* Caliber of gun (the ratio of the bore diameter to bore length). Useful for comparing the relative lengths of guns and mortars. Longer, more streamlined weapons, similar to modern steel guns, tend to have high calibers. Shorter, stubbier weapons, such as mortars and howitzers, generally have low calibers. In this example, the 10-inch Parrott's bore is 14.1 times as long as it is wide, a number which was typical of most Civil War-era guns.

** Weight of gun to shot (the ratio of the weight of a solid projectile to the weight of the gun). Higher numbers generally indicate stronger, more durable guns. This 10-inch Parrott, for example, is 107.6 times heavier than the solid projectile it fired.

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | No 5 | *registry number* |
| | 1864 | *year manufactured* |
| | W.P.F. | *West Point Foundry* |
| | *(pitted)* | *assumed to be* 10 IN, *caliber of bore* |
| | R.M.H. | *Richard M. Hill, inspector, 1861-76* |
| | 26900 | *weight in pounds* |
| **Left trunnion:** | *(pitted)* | *assumed to be* P, *proof mark* |
| **Right trunnion:** | R.P.P. | *Robert Parker Parrott* |
| **Right rimbase:** | 531 *(tentative)* | *foundry number* |
| **Jacket, upper rear:** | PATENTED 1861 | *year process patented* |
| **Top of tube:** | U.S.* | *U.S. Army* |

* Parrotts produced for the Navy had an anchor in place of the "U.S."

The **range** of the 10-inch Parrott was never formally determined. Concerned that such a large gun would be inherently weaker and less durable than smaller versions, Robert Parrott insisted that the 10-inch never be fired at extreme ranges. Those brought to Morris Island during the war, for example, were never used to fire on the city. Instead, they were used against closer targets such as Fort Sumter and the Confederate defenses on Sullivan's Island. Nevertheless, various sources indicate that the range and accuracy of the 10-inch was comparable to the smaller 8-inch and 100-pounder Parrotts.

**Projectiles**weighed approximately 250 pounds; surviving specimens confirm this, with weights ranging from 222 to 250 pounds. The only projectiles used with the 10-inch Parrott were solid bolts and exploding shells. By June 30, 1866, 1,125 shot and 4,049 shells were purchased by the Army, all with the Parrott expansion-cup design. The average cost of these projectiles was $18.83 for shot and $18.09 for shell. A total of 367 Shenkl shells were also purchased.

The typical **service charge** was 26 pounds. Bursting charges for the exploding shells weighed approximately 17 pounds.

Compared to other Parrotts, the 10-inch was a relatively expensive weapon. The average **cost** was $4,950 per gun, or $.19 per pound (contracts for ordnance generally stipulated payment by the pound). This high price was due in large part to the gun's enormous size and the difficulties associated with its production. Its large size also increased the potential for failed castings, a consideration which certainly influenced its price.

Few other forms of military technology have had a greater impact on planning and tactics than the Parrott rifles. As time would show, their long range, improved accuracy, and

heavy hitting power helped to usher in a new age of devastating warfare, and made these rifles perfectly suited for reducing static defenses such as Fort Sumter. Used on an unprecedented scale against the Confederate defenses protecting Charleston, their only legitimate weakness was their discouraging tendency to burst, or to be more precise, their unpredictable endurance. There was no way to safely determine a Parrott's longevity, some failing after only a few firings while others lasted in excess of 4,000 rounds. In fairness, it should be remembered that their technology was revolutionary, and, unfortunately, not fully tested before being rushed into large-scale use.

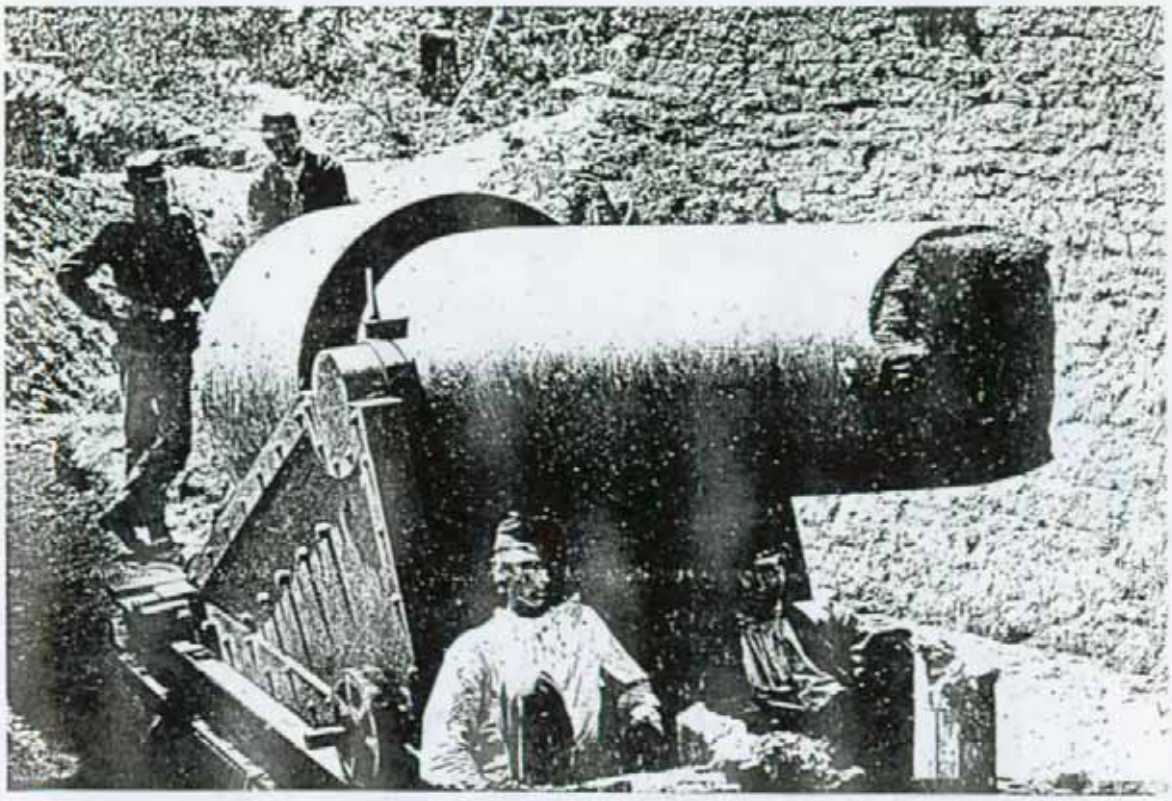
These rifles, along with an assortment of projectiles, fuzes, sights, and other devices, were developed by a talented ordnance expert, Robert Parker Parrott. By the outbreak of the Civil War, Parrott had already enjoyed a career of more than twenty-five years of ordnance testing and development. Born in Lee, New Hampshire on October 5, 1804, he went on to graduate third in his West Point class of 1824. By 1834 he was assigned the important task of inspector of ordnance at the privately-operated West Point Foundry at Cold Spring, New York. Two years later, at the request of the Foundry's chairman, Captain Parrott resigned his commission and became the superintendent of the West Point Foundry. In this position, he enjoyed a great deal of freedom to test and develop new ideas, an opportunity which would have been largely impossible at foundries and arsenals run by the government. This freedom was crucial since many older officers in the Ordnance Bureau were entrenched in their conservative views, and as a result, typically averse to the idea of using rifled cannon. Working independently, Parrott forged ahead, completing his first rifled piece in 1860.

During the war, nine basic sizes of Parrotts were developed, ranging from the 2.9-inch, 10-pounder field gun to the 13-ton, 10-inch monster. Despite the wide range of sizes, all Parrotts were fundamentally the same: each was made of cast iron, rifled, and reinforced with a homogenous wrought iron band over the breech. Their system of rifling, which featured lands and grooves that were straight and generally uniform, was common to all Parrotts; the number of lands and grooves was progressively greater in the larger versions. The Parrotts also incorporated a feature which was unusual for their day. Their rifling had a gaining twist, which simply meant that the rifled twist became progressively tighter as it approached the muzzle, helping the projectile to gain more forward momentum before the rotary spin was imparted. To Parrott it seemed like a good idea, and in fact this principle is used today in many modern weapons where high muzzle velocities are needed, but the ammunition in use during the Civil War was unfortunately not up to the task. Frequently the projectiles could not handle the sharper twist at the muzzle, causing their driving bands to shear-off, which generally made the round tumble in flight. At other times the entire back end of the projectile would break-off, often exposing the bursting charge inside, thus causing a premature explosion inside or just in front of the gun. Parrott, however, was slow to recognize these problems. As late as January 1865, while in front of joint Congressional committee, Parrott was still encouraging the use of his gain twist. And finally, Parrott rifles shared another aspect which was somewhat unusual for the industrialized North - they were all produced in a single foundry, the West Point Foundry of Cold Spring, New York.

The 10-inch, first developed during the winter of 1862, was the largest Parrott produced. The one currently on display was cast in 1864. Its wartime record is unknown,

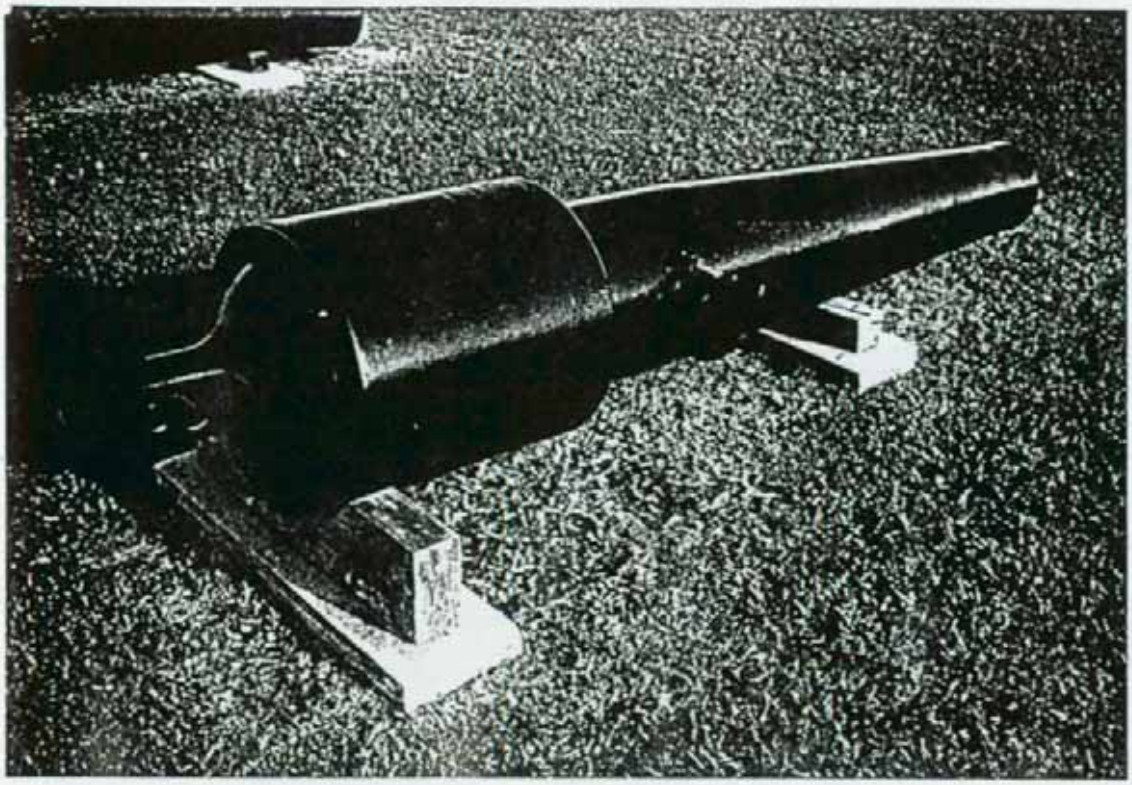
but to aid with the 1870's modernization of Fort Moultrie, a pair of these guns was shipped to Sullivan's Island from the Frankfurt Arsenal. They were never mounted, and for many years they simply lay unused and neglected not far from the fort. Having at last become obsolete they were both sold for scrap on July 16, 1900. One was presumably removed from the island, but the other was buried near Fort Moultrie. Workers digging a trench to install a water main unexpectedly found the gun on November 24, 1950. Once again, though, the heavy Parrott would have to endure a period of neglect and decay. For eleven years it remained heavily rusted and surrounded by weeds and grass. Its status suddenly improved in November 1961 when it was at last donated by the Township of Sullivan's Island to the National Park Service.

A total of forty-two 10-inch Parrotts was produced, the first of which was credited on June 8, 1863, and the last three on April 13, 1866. Approximately eighteen were produced during the war. Most, if not all, of the 10-inch Parrotts were cast using the Rodman process of hollow casting. There are thirteen known survivors: four at Fort Jefferson; two at Fort Taylor; two in Havana, Cuba; one in Portland, Maine; one in Wyoming, Illinois; one in Ypsilanti, Michigan; one in Trumansburg, New York; and one at Fort Moultrie.



**10-inch Parrott, No. 1, Morris Island, 1863.** Mounted in Battery Strong, bearing on Fort Sumter. A premature explosion of a shell took off 18 inches of the muzzle. Later repaired, it went on to fire an additional 370 rounds before becoming unserviceable (Library of Congress).

# 8-inch Parrott M-2



**Common name:** 8-inch Parrott
**Identification:** Parrott, 8-inch, rifle, seacoast, Model 1861
**Other names used:** 200-pounder Parrott (Army designation); 150-pounder Parrott (Navy designation - seldom used)
**Place of manufacture:** West Point Foundry, Cold Spring, New York
**Material:** cast iron tube; wrought iron reinforcing jacket
**Number produced:** 178 (91 for the Army, 87 for the Navy)
**Known survivors:** 8 (8 Army, 0 Navy)

PRINCIPLE DIMENSIONS

**Length:** 163.75 inches **Weight:** 16,487 pounds
**Bore Diameter:** 8 inches **Bore Length:** 135.25 inches **Caliber of gun:** 16.9
**Rifling:** 11 x 11, straight, with right gaining twist **Weight of gun to shot:** 109.9
**Length of jacket:** 34 inches **Thickness of jacket:** 4 inches
**Trunnion diameter:** 10 inches **Trunnion length:** 4.5 inches

MARKINGS

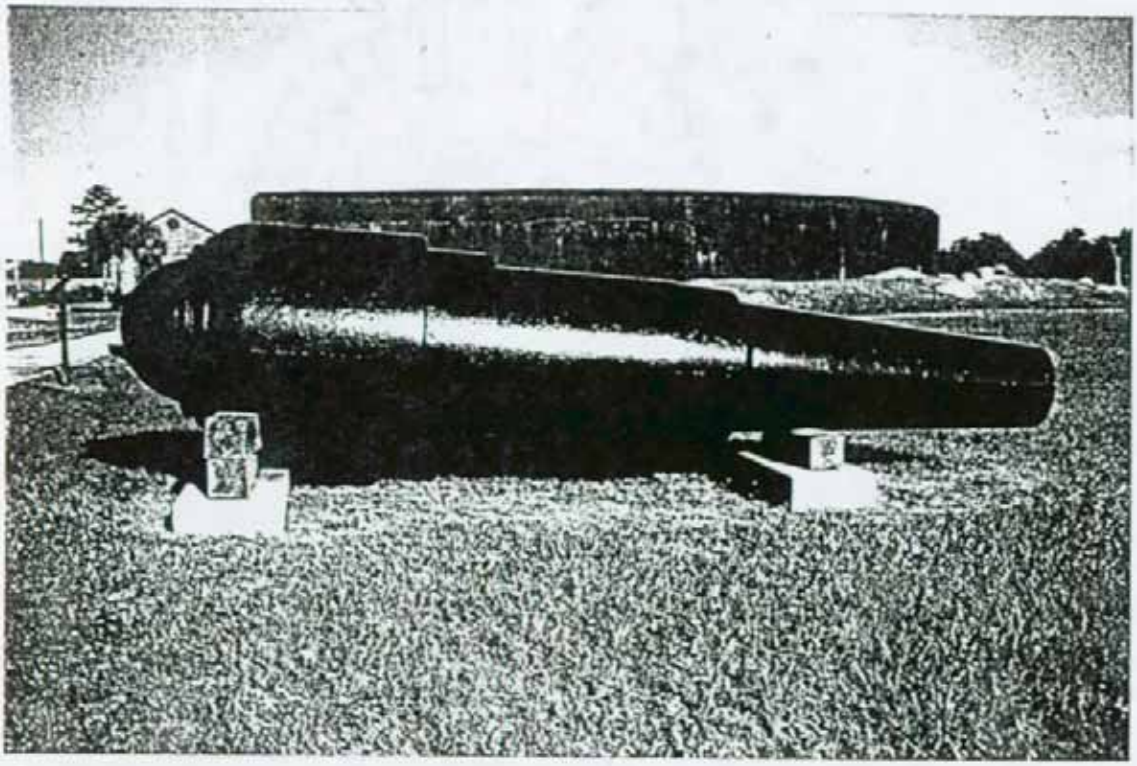
| | | |
|---|---|---|
| **Muzzle:** | No 56 | *registry number* |
| | 1864 | *year of manufacture* |
| | W.P.F. | *West Point Foundry* |
| | 8 IN | *caliber of bore* |
| | R.M.H. | *Richard M. Hill, inspector, 1861-76* |
| | 16487 | *weight in pounds* |
| **Left trunnion:** | P | *proof mark* |
| **Right trunnion:** | R.P.P. | *Robert Parker Parrott* |
| **Right rimbase:** | 884 | *foundry number* |
| **Top of tube:** | U.S. | *U.S. Army* |

The **range** of the 8-inch Parrott was 4.5 miles at an elevation of 35 degrees. The **service charge,** which was rarely deviated from, even when firing at extreme ranges, was 16 pounds. The weight of **projectiles** varied by type and length. Bottle-nosed solid bolts were generally 16.5 inches long and weighed around 145 pounds. Flat nosed bolts were usually one to two inches shorter, but weighed as much as 175 pounds. Surviving shells range from 16.5 to 19.75 inches in length. At least 7,331 bolts, 20,229 shells, and 2,520 case shot were produced for the Army alone. Their respective costs were $12.67, 12.82, and 14.85 each.

Initially the gun was intended to fire a 200-pound projectile, thus the designation 200-pounder. But when a shorter projectile was introduced, this weight was reduced to approximately 150 pounds. The Navy utilized the new weight for designating its guns, but the Army continued to use the initial designation of 200-pounder (Parrott himself continued to refer to the weapon as a 200-pounder). To add to the confusion, projectiles for the gun varied from 135 to 175 pounds. Clearly the safest choice is to call the gun an 8-inch Parrott, but it should be remembered that contemporary accounts and reports often referred to it as either a 150- (or more frequently) a 200-pounder.

This particular gun was shipped to Fort Moultrie in February 1872 from the Augusta Arsenal as part of the fort's much-needed postwar rearmament. The following year it was mounted, along with another 8-inch Parrott, atop a wooden platform and wrought iron carriage on the fort's south face. In August 1897, in preparation for yet another reconstruction of the fort, they were both removed and surveyed to be destroyed. Fortunately, the decision was made to simply bury them on site, beneath a covering of earth and sand fill on the western half of the fort's interior. Archeologists searching for the location of Fort Moultrie's original barracks unexpectedly found both Parrotts on June 20, 1974, along with two 10-inch Rodmans, and a 15-inch Rodman. The other 8-inch Parrott is no longer at the fort. It was traded in February 1977 for the 4.72-inch Armstrong currently mounted atop Battery Bingham. As part of the trade, the Parrott is today located in front of the National Guard Armory in Westerly, Rhode Island.

# 7-inch triple-banded Brooke rifle M-3



**Common name:** 7-inch triple-banded Brooke rifle
**Identification:** Brooke, 7-inch, rifle, seacoast or navy, triple-banded
**Other names used:** VII-inch treble banded rifle
**Place of manufacture:** Joseph Reid Anderson & Co. (Tredegar Foundry), Richmond
**Material:** cast iron tube; three concentric layers of wrought iron reinforcing bands
**Number produced:** 3 **Known survivors:** 1

PRINCIPLE DIMENSIONS

**Length:** 153 inches **Weight:** 21,290 pounds
**Bore diameter:** 7 inches **Bore length:** 136 inches **Caliber of gun:** 19.4
**Rifling:** 7 x 7, inclined-plane, with right twist **Weight of gun to shot:** 177.4
**Type of chamber:** conical - length 6.5 inches
**Length of jackets:** 85 inches (inner band); 45.75 inches (middle); 30 inches (outer)
**Thickness of bands:** 2 inches at breech, tapering to 1.5 inches (inner band), 2 inches (center and outer bands)
**Trunnions:** tube cast without trunnions; bronze (or possibly wrought iron) trunnions and attachment straps are no longer present

MARKINGS

| | | |
|---|---|---|
| **Top of breech:** | 21290 | *weight in pounds* |
| **Upper cascabel jaw:** | prep ?70 | *preponderence in pounds* |

Despite its industrial deficiencies, the South at times was able to produce some remarkable weapons. The powerful Brooke rifles were an excellent example of this sort of quality; their development was arguably the single greatest achievement in armaments production in the South. While their range and accuracy was comparable to the northern-made Parrotts, they tended to be far more reliable and less likely to burst than their northern counterparts. Designed for heavy service charges, they were strongly built with one, two, and sometimes three layers of reinforcing bands over the breech. Ranging in sizes from 6.4- to 8-inches, the Brookes were also made in smoothbore versions, which varied from 8- to 11-inches. With their combination of strength, accuracy, and high endurance, they were ideally suited for combating the North's burgeoning fleet of ironclad warships.

The triple-banded Brooke rifle was the ultimate armor-puncher built in the South. Heavily reinforced over the breech, the strength of the tube was further enhanced by casting it without trunnions - a potential source of weakness for any gun made of cast iron. Ordnance expert John Mercer Brooke cast this gun without trunnions since he realized that during the critical phase of casting when the gun metal cooled, the fluid elements tended to align or become oriented into distinct patterns, typically in the direction of any external protuberances. Without trunnions, the metal was more likely to harden and form in-line with the bore, rather than perpendicular to the gun's axis. When the tube was finally completed, a heavy bronze strap was then used to attach a pair of bronze trunnions.

The triple-banded pattern was designed by Brooke in March 1862 with a calculated weight of 20,240 pounds. Only three of this pattern were ever cast, each at Richmond's Tredegar Foundry. The first (foundry number 1597) was cast June 13, 1862, and entered service on November 19 for use aboard the ironclad ram CSS *Richmond.* Before being mounted it was fired in an experimental trial to test its strength. At a distance of 260 yards, using a charge of 16 pounds and firing a 140 pound wrought iron bolt, the Brooke was truly impressive. It managed to penetrate 8 inches of iron plating and 18 inches of wood backing. In light of this performance, it suddenly became clear that no ironclad made in the North could long survive this sort of punishment at close range. The second (no. 1709) was cast on December 6, 1862. Unfortunately for the Confederates, a fire swept through the Tredegar plant on the morning of May 15 which damaged this valuable gun just prior to it being completed. Initially the gun was condemned on account of cracks formed by the extreme heat of the fire. The decision was later made, though, to ship the gun, but only with the understanding that it be fired with the greatest of care, and never with heavy charges. Destined for the ironclad CSS *Charleston,* it was shipped to that city on July 31, 1863.

Hearing of its pending arrival, General Beauregard immediately requested that the Brooke be turned over to the Army instead. In these matters Beauregard could be very

persuasive and oftentimes painfully persistent. He reasoned that such a powerful gun should not be "buttoned-up" inside an ironclad's casemate where the embrasures severely limited the gun's elevation and range. He won the argument, and the Brooke was eventually mounted on Sullivan's Island. Nevertheless, the Tredegar's warnings were not heeded. During an engagement with the ironclad USS *Weehawken* on September 8, excessive 20 pound charges were repeatedly used, causing one of the bands to give way and the breech to crack.

The third (no. 1717) and final triple-banded Brooke produced, and the one currently on display outside Fort Moultrie, was cast December 13, 1862, and entered service August 20, 1863. It too was destined for the Navy at Charleston, but thanks to the efforts of Beauregard, the gun was invoiced instead to the Army on October 1, 1863. Eventually it was mounted on Sullivan's Island in Battery Marion, approximately 200 yards west of Fort Moultrie. There it became the favorite gun of the Confederate defenders and, with its hard-hitting bolts, the scourge of the Federal Navy.

Following the war, the Brooke was carried to the city by the occupying Federal forces where it was kept for several years on the Arsenal grounds. In time the Arsenal was closed by the government and the area converted into a private school for boys known as the Porter Military Academy. Finally in 1963, when the school was preparing to move to a new location, the gun was graciously donated to the National Park Service at Fort Moultrie.

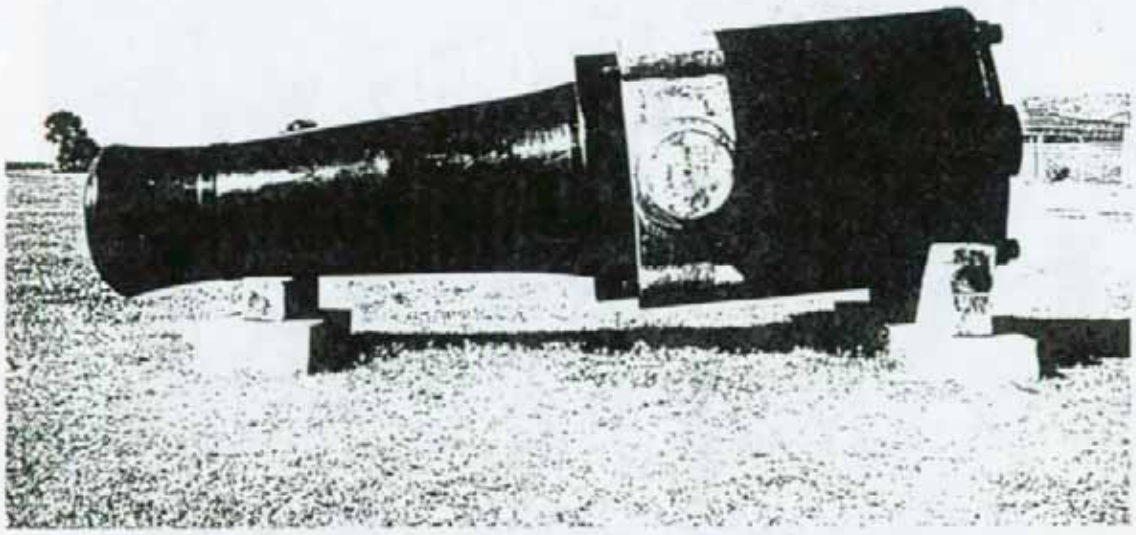
A wide variety of **ammunition** could be used with the Brooke rifles. Bolts for the 7-inch ranged from 95 to 140 pounds, while shells weighed as much as 104 pounds with a bursting charge of 3.5 pounds. Case shot weighed approximately 93 pounds, quilted grape 42 pounds, and canister 45 pounds. While no reliable figures are available for the extreme **range** of these weapons, according to both Southern and Northern accounts it was certainly impressive. A 7-inch double-banded Brooke, for example, was reported to have fired a shell from the parapet of Fort Sumter onto the northern end of Folly Island, a distance of more than four miles.

If the Brookes had any apparent weakness, it was their slow rate of twist. Making only one turn over a length of forty feet, it was argued by some that their range and accuracy could have been improved with a tighter twist.

Although the triple-banded Brooke was a remarkably powerful weapon, Southern leaders probably found it difficult to justify the time and expense of producing such a gun. The equally impressive double-banded variety, which was five inches shorter and nearly 6,000 pounds lighter, was a far more economical choice for the overburdened industries of the South.

**Triple-banded Brooke, Battery Marion, Sullivan's Island, 1865** (Library of Congress)

# 10-inch Columbiad, Model 1844, rifled & banded M-4



**Common name:** 10-inch Columbiad, Model 1844, rifled & banded
**Identification:** Columbiad, 10-inch, smoothbore, seacoast, Model 1844, rifled, banded, and re-trunnioned by the Confederates
**Other names used:** 10-inch Confederate rifle
**Place of manufacture:** Cyrus Alger & Co., Boston
**Material:** cast iron tube; two concentric layers of wrought iron reinforcing bands; bronze trunnions and trunnion band
**Number produced:** 149 10-inch, M1844 smoothbores **Known survivors:** 14

PRINCIPLE DIMENSIONS

**Length:** 126 inches **Weight:** original weight 15,210 lbs; 22,000 lbs after conversion
**Bore diameter:** 10 inches **Bore length:** 111 inches **Caliber of gun:** 11.1
**Rifling:** 15 x 15, straight, right twist **Weight of gun to shot:** 95.2
**Type of chamber:** cylindrical - diameter 8 inches, length 12 inches
**Length of jackets:** 53.5 inches (inner band); 34.25 inches (outer)
**Thickness of bands:** generally 1.5 inches
**Trunnion band length:** 13.25 inches **Trunnion band thickness:** 1.5 inches
**Trunnion diameter:** 10.5 inches **Trunnion length:** 9 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | 7<br>J.W.R. | *registry number*<br>*James Wolfe Ripley, inspector, 1832-63* |
| **Left trunnion:** | J.M. EASON & BRO<br>1863<br>CHARLESTON<br>SC | *Charleston firm which modified gun for the Confederate Army in 1863* |
| **Breech, upper rear:** | JME & BRO | *same as above* |
| **Breech, right rear:** | 15120 | *original production weight in pounds* |
| **Top of tube:** | CS<br>US | *Confederate States*<br>*crude engraving made by Federal captors* |

This 10-inch columbiad, with is bronze trunnions and unique system of banding, is perhaps the most valuable and unusual piece of Civil War artillery in existence today. Cast as a smoothbore in 1846, it was captured by the Confederates during the surrender of Fort Sumter in 1861. At some later date, presumably during the first major bombardment of the fort (beginning August 17, 1863), the gun was struck at least twice by artillery fire, having a trunnion damaged in the process. These two hits can still be seen today along the left side of the tube, the upper shot producing the glancing blow which apparently knocked off the trunnion. With the gun now practically useless, Beauregard decided to try an experiment. A number of 32- and 42-pdr smoothbores had successfully been converted into rifles. Even a pair of 8-inch columbiads had been rifled, but the conversion of a 10-inch gun had rarely, if ever, been attempted. In the minds of some Richmond officials, a gun this size was far too valuable to be wasted in such a risky experiment. But with the gun already damaged and of no value, Beauregard argued that there was nothing to lose.

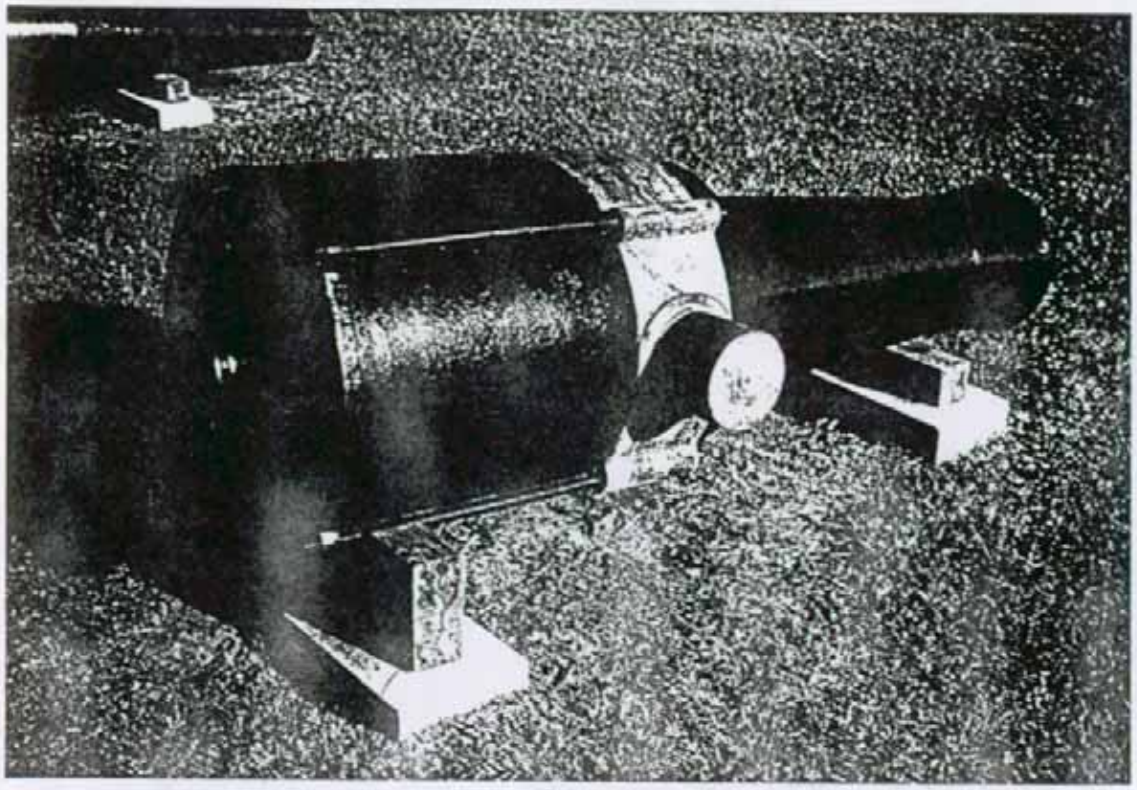
Without authorization from Richmond, Beauregard had the piece shipped to Charleston where a private firm operated by J.M. and T.D. Eason put their talents to work. But their task would not be easy. Both the good trunnion and the stub of the other were cut back and turned true. Next, the rear of the tube was presumably turned down so that a gradual taper was formed, with the taper increasing toward the muzzle (this would have been done to help prevent the reinforcing bands from slipping backward when the gun was fired). Two series of wrought iron bands were then placed over the breech, a bronze trunnion band with trunnions attached, and four iron bolts used to help hold the bands in place. As a result of the conversion, the weight was increased from 15,120 to roughly 22,000 pounds. With the breech now much heavier, the trunnions were necessarily placed farther to the rear of the tube, which helped to reduce the amount of preponderance.

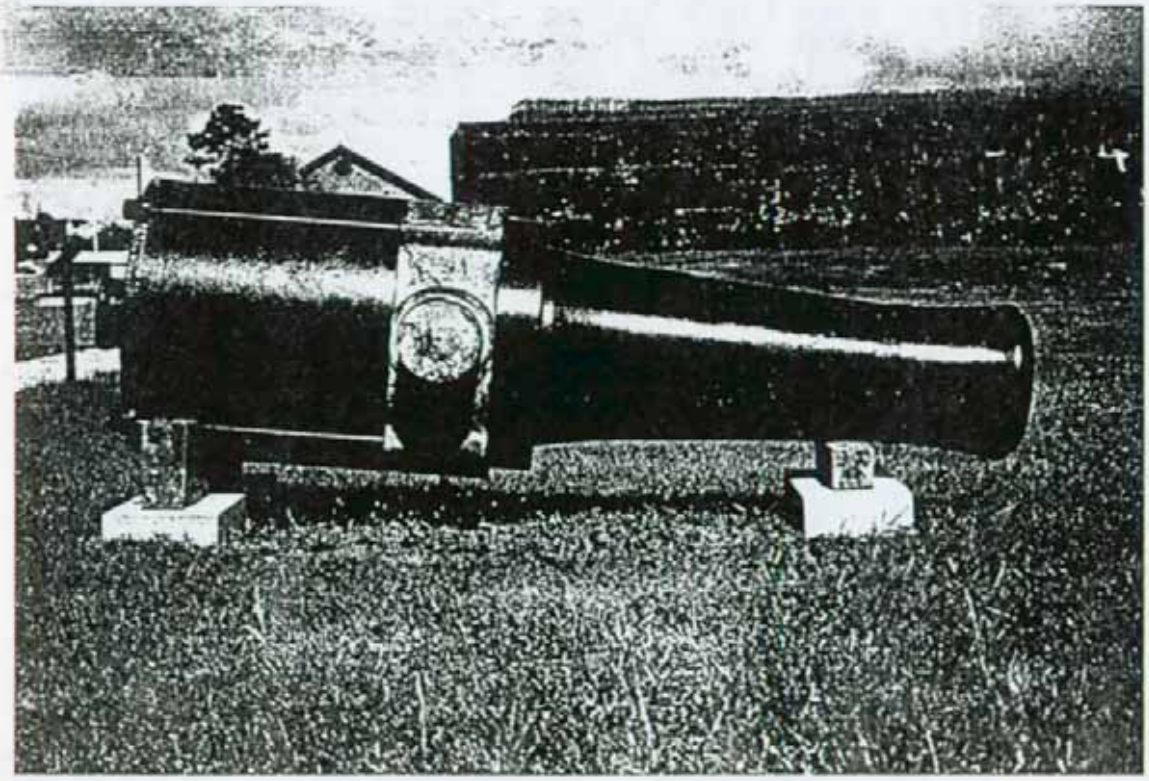
The experiment was largely a success. Highly regarded by both the Confederate defenders and the opposing Federal Navy, the rifle achieved good results after being mounted in Battery Bee upon Sullivan's Island toward the end of 1863. Wisely, since the

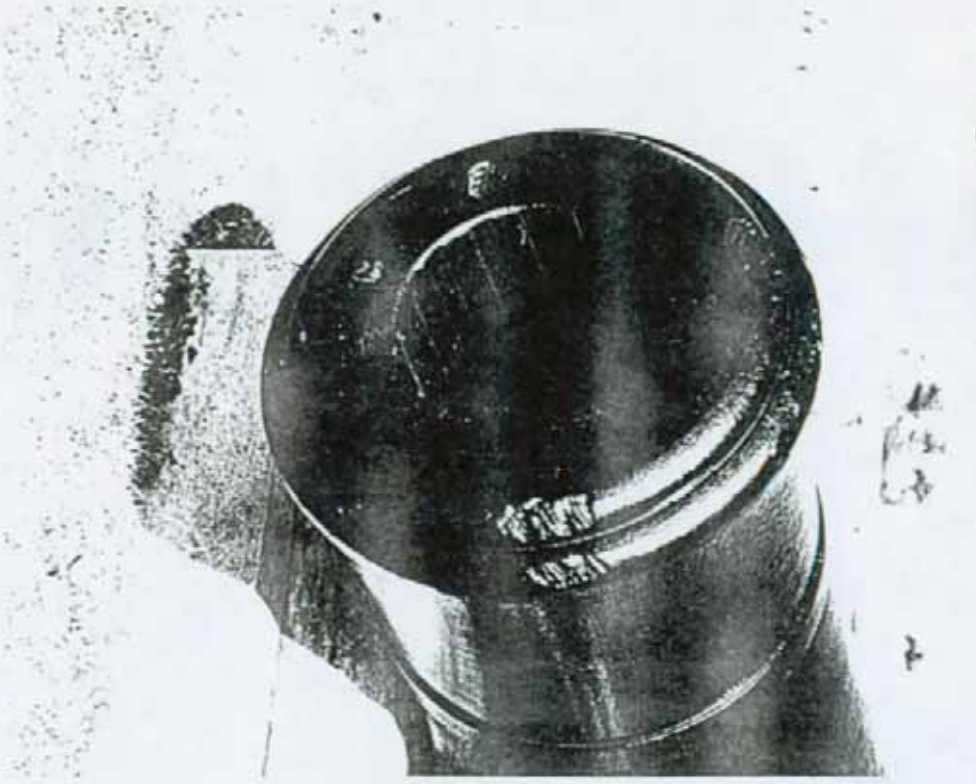
strength of this converted gun was somewhat in doubt, the decision was made to limit the amount of powder and elevations used during firing. As a result its role would be rather limited, being reserved largely for close range work against ironclads. With Harding projectiles of about 215 pounds and using 12 pounds of large-grained powder, the rifle obtained **ranges** of 1,200 yards at an elevation of 2.5 degrees. On one particular occasion, General Ripley reported that the rifle fired five 231 pound bolts at a range of 1,438 yards using 15 pounds of powder at 3.25 degrees of elevation.

With the Confederate evacuation on February 17, 1865, the 10-inch rifle was still in place at Battery Bee. There it remained for a number of years, until being carried to Fort Moultrie where it was mounted near the grave of Osceola. After a couple of more moves, it was finally incorporated into Moultrie's cannon row in April 1978.

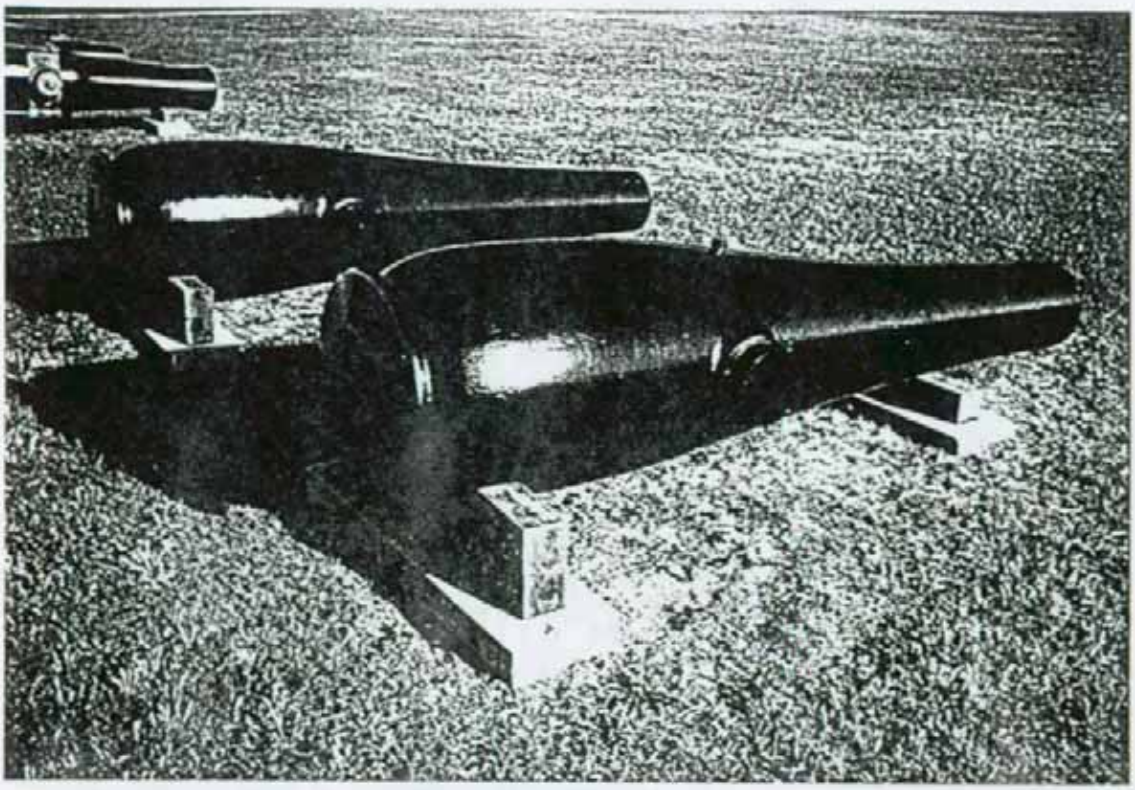
A total of 149 10-inch, Model 1844, columbiads were cast: 29 at Cyrus Alger, 10 at the Bellona Foundry, 50 at Fort Pitt, 15 at the Tredegar Foundry, and 45 at the West Point Foundry. There are 14 known survivors.







# 10-inch Rodman M-5 & M-6



**Common name:** 10-inch Rodman
**Identification:** Columbiad, 10-inch, smoothbore, seacoast, Model 1861
**Other names used:** 10-inch Columbiad, Model 1861
**Place of Manufacture:** Fort Pitt Foundry, Pittsburgh
**Material:** cast iron
**Number produced:** at least 1,291 **Known survivors:** 98

PRINCIPLE DIMENSIONS

**Length:** 136.5 inches **Weight:** 14,956 pounds (M-5); 14, 980 pounds (M-6)
**Bore diameter:** 10 inches **Bore length:** 118.75 inches **Caliber of gun:** 11.9
**Weight of gun to shot:** 116.8 (M-5); 117.0 (M-6)
**Trunnion diameter:** 10 inches **Trunnion length:** 3.25 inches

MARKINGS

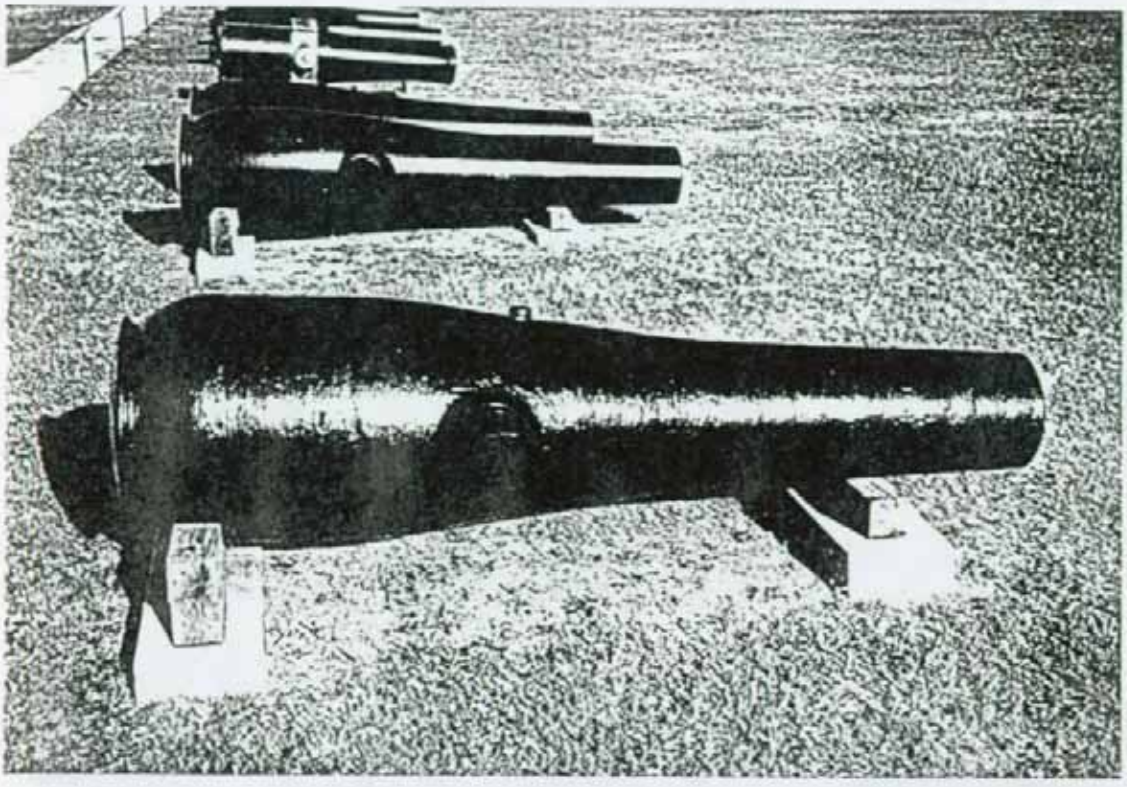
| | M-5 | M-6 | |
|---|---|---|---|
| **Muzzle:** | No 156<br>14965 lbs<br>RHKW<br><br>FORT PITT PA<br>1863 | No 182<br>14980 lbs<br>RHKW<br><br>FORT PITT PA<br>1863 | *registry number*<br>*weight in pounds*<br>*Robert Henry Kirkwood Whitely, inspector, 1834-36, 38-75*<br>*Fort Pitt, Pennsylvania*<br>*year of manufacture* |
| **Right rimbase:** | 1669 | 1790 | *foundry number* |
| **Top of tube:** | U.S. | U.S. | *U.S. Army* |

Produced in large numbers, the Rodman smoothbore formed the backbone of the coastal forts in the United States, both during the Civil War and in the three decades following 1865. At least 240 8-inch, 1,291 10-inch, 322 15-inch, and 2 20-inch Rodmans were cast, or approximately 2 ½ times the number of heavy Parrott rifles produced during the same period. Remarkably, though, the author knows of no Rodman ever being fired in combat during the Civil War. Clearly the South was not in a position to attack the permanent forts and batteries in the North, nor did they come under fire from those Rodmans brought to the occupied areas in the South. If the Rodmans had a chance to fire a shot in anger, it would have been along the James River, or perhaps in the Hampton Roads area. Due to this limited use, and certainly as a tribute to their great strength and endurance, no Rodman ever burst, other than those that were converted to rifles, those that burst during extreme proofs, or the ones which spontaneously broke during casting.

The **service charge** of the 10-inch Rodman was 18 pounds. The extreme **range**, fired with a 20 pound charge, a 125 pound shot, and at an elevation of 39 degrees, was 5,654 yards, or approximately 3.2 miles. Time in flight at this range was 35 seconds. The Rodman could fire solid shot, exploding shell (normally weighing 100 pounds), and canister. A total of 72,533 shot and 96,617 shell were purchased during the war, with an average cost of $4.70 for the former, and $4.40 for the later. The average **cost** of each 10-inch Rodman was $1,655, or $0.11 per pound.

The two 10-inch Rodmans currently on cannon row were shipped to Fort Moultrie from Georgia's Augusta Arsenal in February 1872 as part of the fort's postwar modernization. One was mounted in position 4 along the southeast face, while the other was placed in position 9 on the southwest face. By the turn of the century, however, they were rapidly becoming obsolete, and with the addition of rapid-fire gun batteries inside of Fort Moultrie, the Rodmans were no longer needed. Both were soon surveyed and ordered to be destroyed. Rather than be destroyed, though, they were simply buried, along with two 8-inch Parrotts and one 15-inch Rodman, inside the fort on the western half of the parade ground. These five heavy guns were unexpectedly found there in June 1974 by archaeologists searching for the location of Fort Moultrie's original barracks.

# 10-inch Confederate Columbiad M-7



**Common name:** 10-inch Confederate Columbiad
**Identification:** Columbiad, 10-inch, smoothbore, seacoast, Model 1861, Confederate
**Other names used:** 10-inch Columbiad, Model 1862; 10-inch "Confederate Rodman"
**Place of manufacture:** Joseph Reid Anderson & Co. (Tredegar Foundry), Richmond
**Material:** cast iron
**Number produced:** at least 135 **Known survivors:** 18

PRINCIPLE DIMENSIONS

**Length:** 123.5 inches **Weight:** 13,290 pounds
**Bore diameter:** 10 inches **Bore length:** 107.75 inches **Caliber of gun:** 10.8
**Weight of gun to shot:** 103.8
**Trunnion diameter:** 10 inches **Trunnion length:** 9 inches

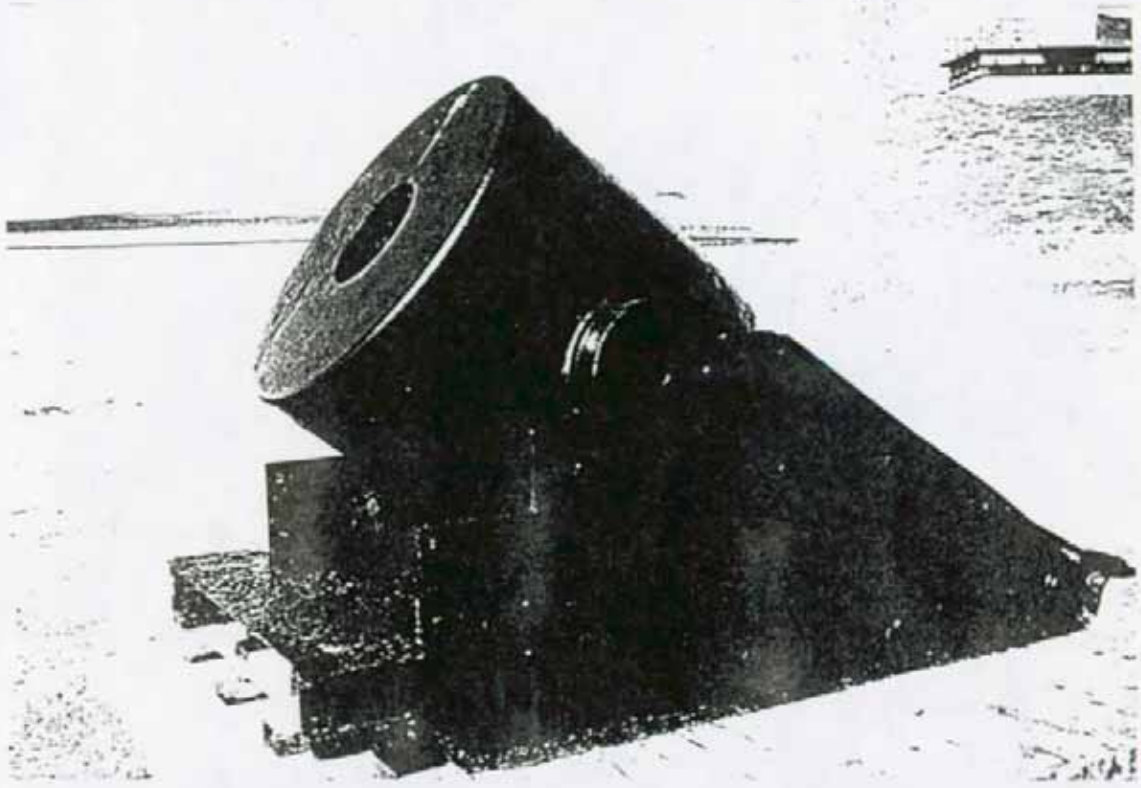
MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | 1656 | *foundry number* |
| **Left trunnion:** | 1862 | *year of manufacture* |
| **Right trunnion:** | J.R.A. & Co.<br>T.F. | *Joseph Reid Anderson & Co.*<br>*Tredegar Foundry* |
| **Breech, upper center:** | 13290 | *weight in pounds* |

Since the Confederate-made columbiads were essentially rough copies of the Rodmans manufactured in the North, their appearance and characteristics were quite similar. On closer examination, though, some differences become obvious. Compared to the smooth external finish of the Rodmans, the Confederate columbiads typically had a rough appearance. Confederate manufacturers correctly reasoned that the effort to turn the gun off in a lathe was an unnecessary step which did nothing to enhance the performance of the weapon. Another identifying feature was their longer trunnions, 9 inches on the Confederate columbiads compared to only 3.25 inches for the Rodmans. Unwilling to waste their dangerously short supply of iron for the production of carriages, wood was used instead which was far more abundant in the South than iron and under the circumstances served reasonably well. But these wooden carriages were not as strong as the sturdy wrought iron carriages produced in the North, and consequently they required thicker cheeks and longer trunnions for the guns. As part of another effort to conserve pig iron in the South, the Confederate columbiad was designed with a shorter overall length, typically 13 inches shorter than the 10-inch Rodman. The resulting savings in iron was considerable, with the gun being approximately 1,700 pounds lighter than the Rodman. The thickness of metal over the breech was still maintained (the maximum diameter was approximately 31.5 inches compared to 32 inches in the Rodman) and performance was probably similar, especially at close ranges where by design these smoothbores would see their greatest use. Being lighter, the Confederate gun was also easier to ship and move into position. So despite the steps taken to make the columbiad easier and cheaper to produce in the South, it was still a formidable weapon and just as strong as the Northern-manufactured Rodman. . . with one *critical* exception. The Confederate columbiad was inherently weaker since it was not manufactured using the Rodman process of hollow casting (*see M-9 & M-10*).

Understandably, large columbiads were in great demand throughout the South, particularly in those areas where Federal ironclads were active. And other than the heavy rifles, no smoothbore smaller than the 10-inch was considered to be effective against ironclad targets. Richmond's Tredegar Foundry cast about 128 such guns while the Bellona Foundry produced an unknown quantity (there are at least 9 Bellona survivors). Of the 18 known surviving 10-inch Confederate columbiads, 11 are in the Charleston area: two at Fort Moultrie, two on Sullivan's Island, two at the Battery, two at Magnolia Cemetery, two at Belle Isle Gardens, and one (perhaps two) at Castle Pinckney.

# 13-inch Seacoast Mortar, Model 1861 M-8



**Common name:** 13-inch Seacoast Mortar, Model 1861
**Identification:** Mortar, 13-inch, seacoast, smoothbore, Model 1861
**Place of manufacture:** Fort Pitt, Pittsburgh
**Material:** cast iron

PRINCIPLE DIMENSIONS

**Length:** 54.5 inches **Weight:** 17,196 pounds
**Bore diameter:** 13 inches **Bore length:** 33.5 inches **Caliber of gun:** 2.58
**Weight of gun to shell:** 78.9
**Trunnion diameter:** 15 inches **Trunnion length:** 3.5 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | 17196 lbs | *weight in pounds* |
| | No 104 | *registry number* |
| | J.R.E. | *John Rufus Edie, inspector, 1861-74* |
| | FORT PITT PA | *Fort Pitt, Pennsylvania* |
| | 1862 | *year of manufacture* |
| **Tube, upper right:** | 917 | *foundry number* |

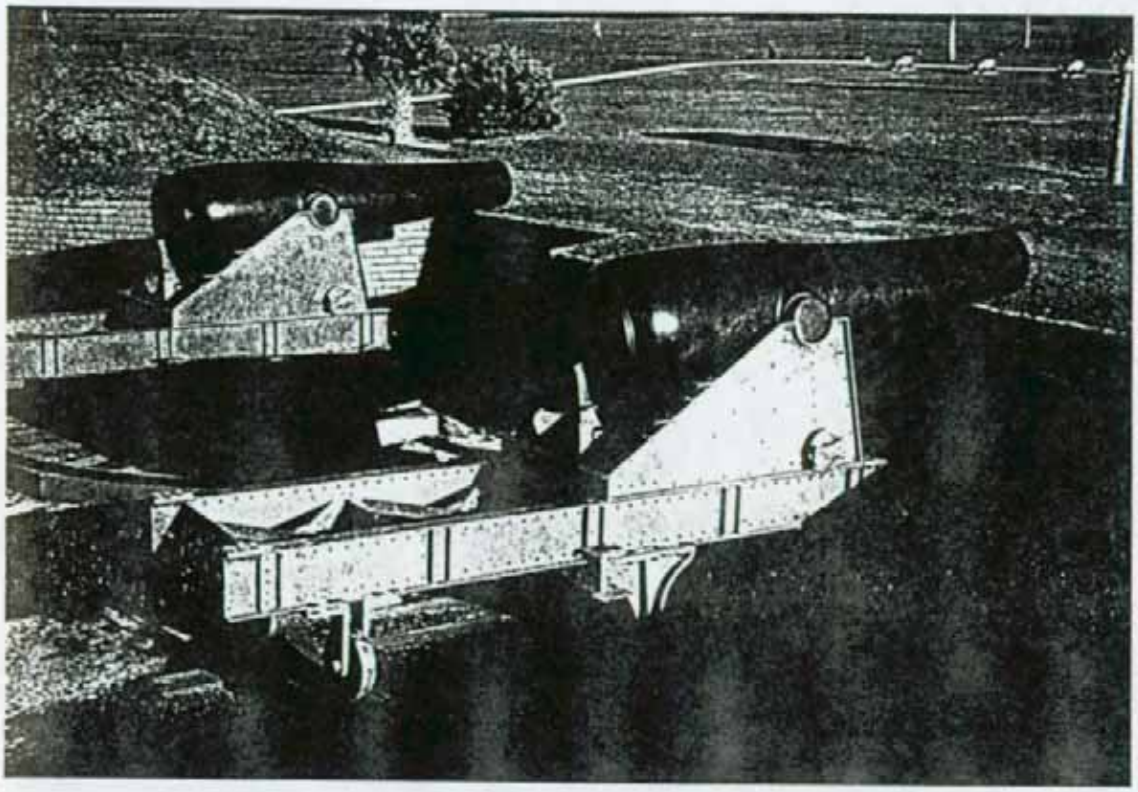
Massively built, 13-inch seacoast mortars were effective at lobbing large exploding projectiles over great distances and with crushing effect. **Projectiles**, ranging from 200 to 218 pounds, were generally fired at an elevation of 45 degrees and with a **service charge** of 20 pounds. The extreme **range** with a 200 pound shell was 4,325 yards, or 2.5 miles.

The Army Ordnance Department purchased 90 13-inch seacoast mortars at an average **cost** of $1,273.69 per mortar, or $0.07 per pound. The Federal Army also purchased 44,181 13-inch mortar shells at an average cost of $6.88. For attacking Confederate shore batteries, 13-inch mortars were also purchased by the Navy and used on specially made mortar barges and mortar schooners. Most, if not all, of the 13-inch mortars produced in the North were manufactured using the Rodman process of hollow casting. No mortar this large was ever produced in the South.

The *potential* benefit of lobbing heavy projectiles directly on top of a target, inside a fort or battery, or onto the deck of ship was enormous. Furthermore, the high, arching trajectories of their projectiles made it possible for them to overcome intervening obstacles, such as protective parapets, earthworks, and saps. Just as demoralizing for the Confederates was their crushing weight, which at times caused the roofs of bombproofs to collapse. Clearly, though, these heavy mortars had their limitations. Weighing more than 17,000 pounds, they proved to be unwieldy and cumbersome during siege operations. Combined with their discouraging lack of accuracy, many leaders, including the North's leading expert on siege operations, Quincy Gillmore, considered them far more trouble than they were worth. They were used against Fort Pulaski and later on Morris Island during the bombardment of Sumter, but in both cases their contributions were modest.

During the 1870's modernization of Forts Sumter and Moultrie, four 13-inch mortars were shipped to each respective fort (those sent to Fort Moultrie are today located along the downtown Battery park). The four shipped to Sumter during the summer of 1872 were mounted inside the fort's gorge wall by June 1874. A short time later they were dismounted and stored either on the parade ground or within the fort's casemates. By 1935 two were mounted outside the left flank where they graced the entrance; the disposition of the other two is presently unknown. In August 1969 Sumter's remaining two mortars were on the move again. One was donated to the Petersburg National Battlefield and was used to replace the concrete replica of the famous "dictator." The other mortar was shipped across the harbor to Fort Moultrie where it anchors today's cannon row.

# 15-inch Rodman M-9 & M-10



**Common name:** 15-inch Rodman
**Identification:** Columbiad, 15-inch, smoothbore, seacoast, Model 1861
**Other names used:** 15-inch Columbiad, Model 1861
**Place of manufacture:** Scott Foundry (Seyfert, McManus & Co.), Reading, PA
**Material:** cast iron
**Number produced:** 322 **Known survivors:** 25

PRINCIPLE DIMENSIONS

**Length:** 192 inches **Weight:** 50,070 pounds (M-9); 49,890 pounds (M-10)
**Bore diameter:** 15 inches **Bore length:** 165 inches **Caliber of gun:** 11
**Weight of gun to shot:** 115.9 (M-9); 115.5 (M-10)
**Trunnion diameter:** 15 inches **Trunnion length:** 4.5 inches

MARKINGS

| | M-9 | M-10 | |
|---|---|---|---|
| **Muzzle:** | No 24 | No 21 | *registry number* |
| | W.P. | W.P. | *William Prince, inspector,* |
| | S.F. | S.F. | *1864-80 Scott Foundry* |
| | 1867 | 1866 | *year of manufacture* |
| | 50070 | 49890 | *weight in pounds* |

Thomas Jackson Rodman, the man who developed the process which made it possible to produce stronger and larger seacoast guns, was born in Salem, Indiana on July 30, 1815. Rodman graduated 7th in the West Point class of 1841, the same class which produced the future chief of the Confederate Ordnance Bureau, Josiah Gorgas, who graduated 6th. Posted to a variety of ordnance assignments prior to the war, Rodman witnessed first-hand the inherent weakness of heavy guns manufactured using the traditional method of rough, solid casting. In this process, the outer layers of the guns cooled first becoming solid while the interior of the casting remained fluid. Gradually as the inner layers cooled and contracted, the outer solid crust was unable to follow the contraction of the inner mass. As a result, the interior became solid in a state of high tension. Under these circumstances, the potential for developing flaws, cracks, and cavities in the interior of the gun - the area which required the *greatest* strength - was considerable. And since the frequency and severity of these flaws merely increased with the size of the casting, there was a practical limit to the size of gun which could be cast solid and still be considered safe enough to resist the strain of firing.

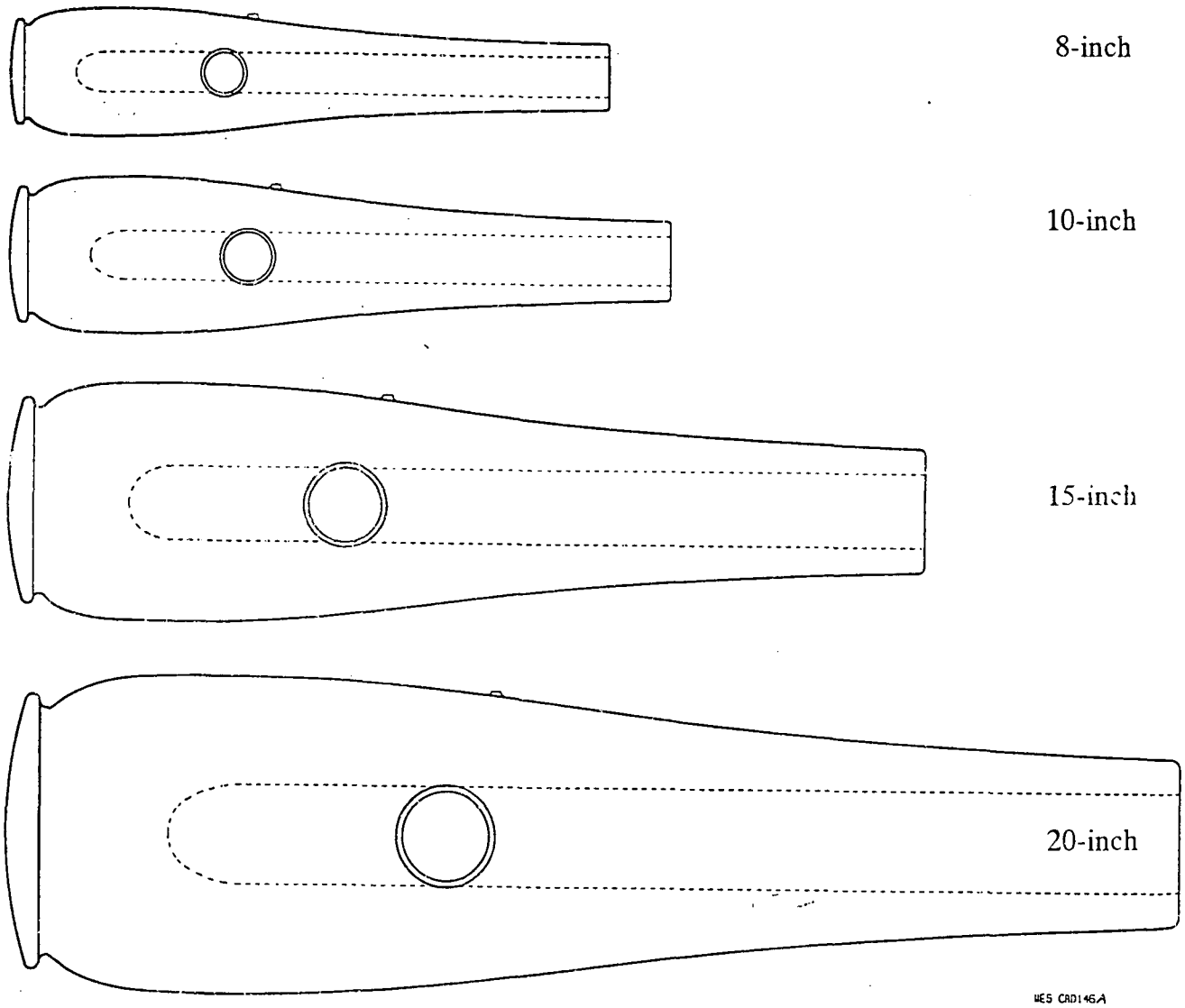
By 1847 Rodman had developed his theory of hollow casting. As part of this process, when the metal cooled, cold water was pumped through the core of the mold located inside the bore. As the water circulated and carried off the heat of the casting, the tube cooled from the inside out, the reverse of what occurred during the traditional method. And with the Rodman process the metal no longer pulled itself apart as it cooled; instead the interior of the tube cooled first, and as the outer layers progressively cooled and contracted, they clamped down and helped to strengthen the interior of the tube.

As trials conclusively showed, heavy guns manufactured using the Rodman process were stronger and gave greater endurance that those which were cast solid. The metal along the surface of the bore was also harder and more closely grained, which in turn offered greater resistance to the erosion of gases and to the action of the projectile on the bore. Furthermore, since the time required to cool and finish the bore of the gun was greatly diminished, production time and foundry capacity was significantly improved by using Rodman's patented process.

Due to the reluctance of the Tredegar's president, Joseph Reid Anderson, to adopt this technology prior to the war, the South was largely denied the use of the Rodman process. Despite desperate pleas throughout the South for larger guns, it was not until November 14, 1864, that a pair of 12-inch columbiads were cast on the hollow principle. The end of the war found them unfinished.

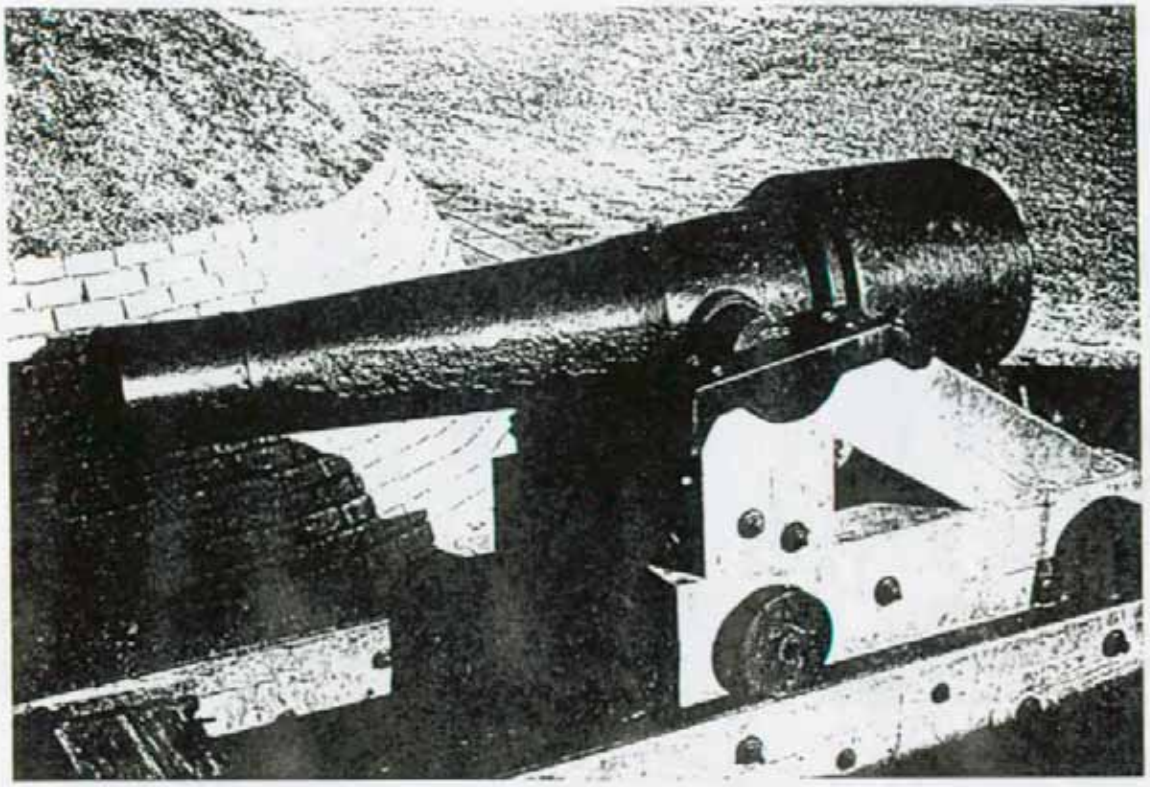
The pair of 15-inch Rodmans presently inside of Fort Moultrie were shipped to the fort in early 1872 and mounted in positions 7 & 8 along the south face. Since these guns were too heavy to be off-loaded onto the wharf in front of the fort, they had to be put ashore on the back beach approximately 200 yards west of the parade ground. They remained mounted in the fort until roughly the turn of the century when they were replaced by the two 15-pounder rapid-fire guns of Battery Lord and sold for scrap in July 1900. Despite this transaction, one remained on the parade ground while the other was buried nearby inside the fort. Following the removal of Battery Lord during the fort's most recent renovation, the Rodmans were mounted atop reproduction carriages in 1976.

**15-inch Rodman, Fort Moultrie parade ground, 1968.** Battery Lord, a two-gun battery completed in 1903, is in the background. Five heavy guns were found buried in the area to the right of the Rodman during the excavation of the parade ground in 1974 (Ft. Sumter files).




**Comparative sizes of Rodman guns** (courtesy of Wayne Stark).

# 8-inch Columbiad, "new pattern," rifled & banded M-11



**Common name:** 8-inch Columbiad, Model 1844 "new pattern," rifled & banded
**Identification:** Columbiad, 8-inch, smoothbore, improved version of the Model 1844, seacoast, rifled and banded by the Confederates
**Other names used:** 8-inch New Columbiad, Pattern of 1857; Model of 1858
**Place of Manufacture:** West Point Foundry, Cold Spring, New York
**Material:** cast iron tube; two concentric layers of wrought iron reinforcing bands
**Number produced:** at least 94 8-in new pattern smoothbores **Known survivors:** 2

PRINCIPLE DIMENSIONS

**Length:** 122 inches (cascabel broken-off) **Weight:** 8975 pounds (before modification)
**Bore diameter:** 8 inches **Bore length:** 98 inches **Caliber of gun:** 12.25
**Rifling:** 8 x 8, inclined-plane, with right twist
**Length of jackets:** 32.5 inches (inner band); 24.75 inches (outer)
**Thickness of bands:** approximately 1.75 inches
**Trunnion diameter:** 8 inches **Trunnion length:** 6.5 inches

MARKINGS

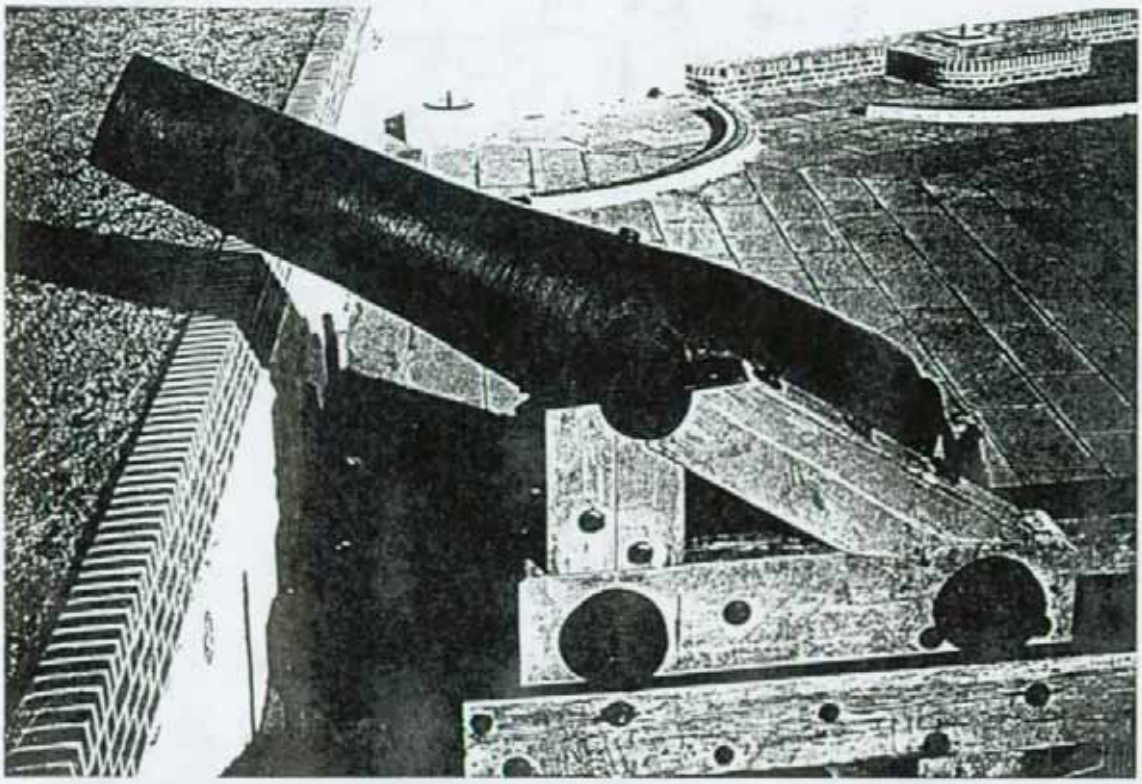
| | | |
|---|---|---|
| **Muzzle:** | 89<br>B.H. | *registry number*<br>*Benjamin Huger, inspector, 1832-61* |
| **Left trunnion:** | *(pitted)* | *assumed to be* 1857, *year of manufacture* |
| **Right trunnion:** | R.P.P.<br>W.P.F. | *Robert Parker Parrott*<br>*West Point Foundry* |
| **Right rimbase:** | 970 | *foundry number* |
| **Top of tube:** | U.S. | *U.S. Army* |
| **Breech:** | 8975 | *weight in pounds* |

Aware of the need for heavy rifles yet being unable to manufacture or purchase enough to meet demand, many old smoothbores were successfully rifled and banded in the South during the war. The process was surprisingly simple and could be done at two locations in Charleston, either at the privately-run shop of James Eason and Bros or at the former U.S. Arsenal operated by the Confederate Ordnance Bureau. In fairness, these rifles were viewed by Southerners as merely a compromise. They were valuable when used at moderate ranges and with minimal charges, but they were certainly not as strong or as durable as the Brooke rifles. Clearly the conversion of any smoothbore carried risks. Not only was the weight of the projectile roughly doubled by the conversion, but the windage greatly reduced as well. The resulting strain made it imperative that wrought iron banding be added over the breech. Some converted smoothbores were *not* banded, but they were never held in high regard by their crews and were wisely used with great caution.

This particular gun was cast at the West Point Foundry as a smoothbore in 1857. Ninety-four guns of this pattern were produced for the Federal government prior to the adoption of a new columbiad, the Model of 1861. As with their eventual replacement, most of the Model 1844 "new pattern" guns were cast using the Rodman method of hollow casting. Their **cost** was modest, only $0.06 per pound, or approximately $585 per gun.

Today's example was probably in the Charleston area during the 1861 battle. Later rifled, banded, and mounted in Fort Moultrie, it is possibly the same gun referred to in a report by Beauregard when he praised its performance, having fired a total of more than 100 rounds in five different engagements against ironclads. **Projectiles** included shells weighing over 100 pounds and bolts of 140 pounds, "giving a greater range" than smoothbores fired at comparable or higher elevations. This was one of two rifled & banded 8-inch columbiads abandoned at the fort by the Confederates in 1865, removed during the modernization of the 1870's, and then placed on the field behind the fort where it lay unused for nearly a hundred years. Finally it was donated by the Township of Sullivan's Island, along with a 10-inch Parrott rifle, to the National Park Service in 1961.

# 10-inch Confederate Columbiad M-12



**Common name:** 10-inch Confederate Columbiad
**Identification:** Columbiad, 10-inch, smoothbore, seacoast, Model 1861, Confederate
**Other names used:** 10-inch Columbiad, Model 1862; 10-inch "Confederate Rodman"
**Place of Manufacture:** Joseph Reid Anderson & Co. (Tredegar Foundry), Richmond
**Material:** cast iron
**Number produced:** at least 135 **Known survivors:** 18

PRINCIPLE DIMENSIONS

**Length:** 124 inches **Weight:** 13,360 pounds
**Bore diameter:** 10 inches **Bore length:** 107.75 inches **Caliber of gun:** 10.8
**Weight of gun to shot:** 104.4
**Trunnion diameter:** 10 inches **Trunnion length:** 9 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | 1664 | *foundry number* |
| **Left trunnion:** | 1862 | *year of manufacture* |
| **Right trunnion:** | J.R.A. & Co<br>T.F. | *Joseph Reid Anderson & Co.*<br>*Tredegar Foundry* |
| **Breech, upper center:** | 13360 | *weight in pounds* |

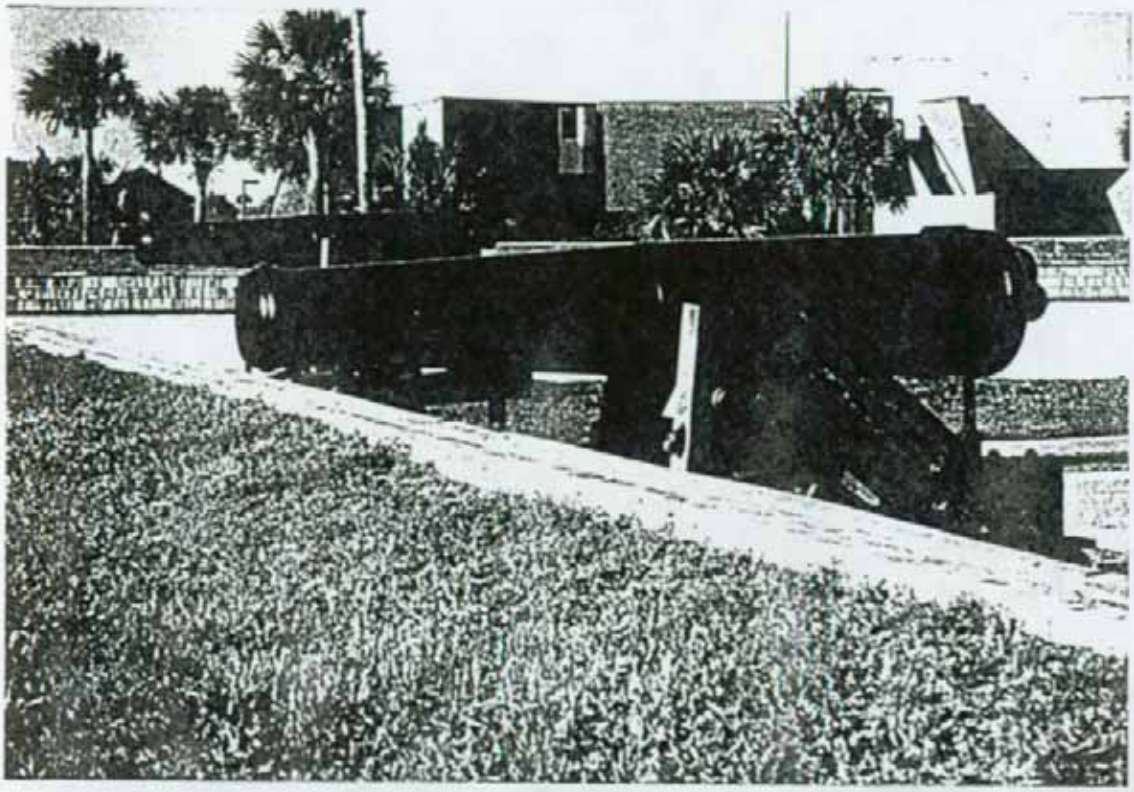
In some respects the columbiads produced in the South were rough copies of the Rodmans made in the North during the war. Since their appearance was generally the same, they were often erroneously called "Confederate Rodmans." It should be remembered, though, that the Southern smoothbores were *not* cast with the Rodman process of hollow casting. Instead they were cast solid, and as such, could not be considered as strong as their Northern counterparts.

The solid shot for the 10-inch columbiad weighed between 125 and 128 pounds, while shells varied between 100 and 105 pounds. Canister and grape shot could be used as well. The **service charge** for the gun was typically 18 pounds. The **range** using a 18 pound charge at 35 degrees of elevation was 4,828 yards, or 2.7 miles. Firing over water, it was reported that a 125 pound shot fired at an elevation of 39.15 degrees and with a 20 pound charge ceased to ricochet at 5,654 yards, or 3.2 miles. These impressive ranges were comparable to the Northern manufactured 10-inch Rodman, but firing at extreme ranges was generally avoided in the South. Using their columbiads at closer ranges, the Confederates not only conserved desperately needed ammunition, but helped to prolong the life of their guns as well.

With the Confederate evacuation of February 17, 1865, there was a total of fifteen 10-inch columbiads on Sullivan's Island, four of which were mounted inside Fort Moultrie. In 1872 these last four were removed and placed outside the fort in preparation for the Federal government's modernization of Moultrie. By 1886 ten were still on the island, but were unmounted and lying unused. Over the years, six were apparently sold as scrap metal and removed from the island. The other four were eventually set up as monuments along Middle Street at both entrances of the Fort Moultrie reservation, half-buried with their muzzles pointing upward. To embellish their appearance and to perhaps help keep water out of the tubes, 11-inch Dahlgren projectiles were placed on top of each muzzle. Eventually the guns were dug up and mounted atop concrete pedestals in the 1930's. The two nearest Fort Moultrie were removed by the National Park Service on April 21, 1975, and their pedestals destroyed. One columbiad was eventually mounted on cannon row, while the other was mounted inside the fort.

*(for more information, see M-7 and Chapter Four)*

# 32-pounder, Model 1829 M-13 & M-14



**Common name:** 32-pounder, Model 1829
**Identification:** 32-pounder, gun, smoothbore, seacoast, Model 1829
**Place of manufacture:** Bellona Foundry, near Richmond, VA
**Material:** cast iron
**Number produced:** 1,222 **Known survivors:** 49

PRINCIPLE DIMENSIONS

**Length:** 125 inches **Weight:** 7,506 pounds (M-13); 7,498 pounds (M-14)
**Bore diameter:** 6.4 inches **Bore length:** 107 inches **Caliber of gun:** 16.7
**Weight of gun to shot:** 234.6 (M-13); 234.3 (M-14)
**Trunnion diameter:** 6.4 inches **Trunnion length:** 6 inches

MARKINGS

| | M-13 | M-14 | |
|---|---|---|---|
| **Muzzle:** | J.B.<br>No 124 | J.B.<br>No 163 | *John Bankhead, inspector, 1830 registry number* |
| **Left trunnion:** | I.C.<br>B.F. | I.C.<br>B.F. | *John Clarke, owner*<br>*Bellona Foundry* |
| **Right trunnion:** | 1830 | 1830 | *year of manufacture* |
| **Breech, lower rear:** | 7506 | 7498 | *weight in pounds* |
| **Top of tube:** | U.S. | U.S. | *U.S. Army* |

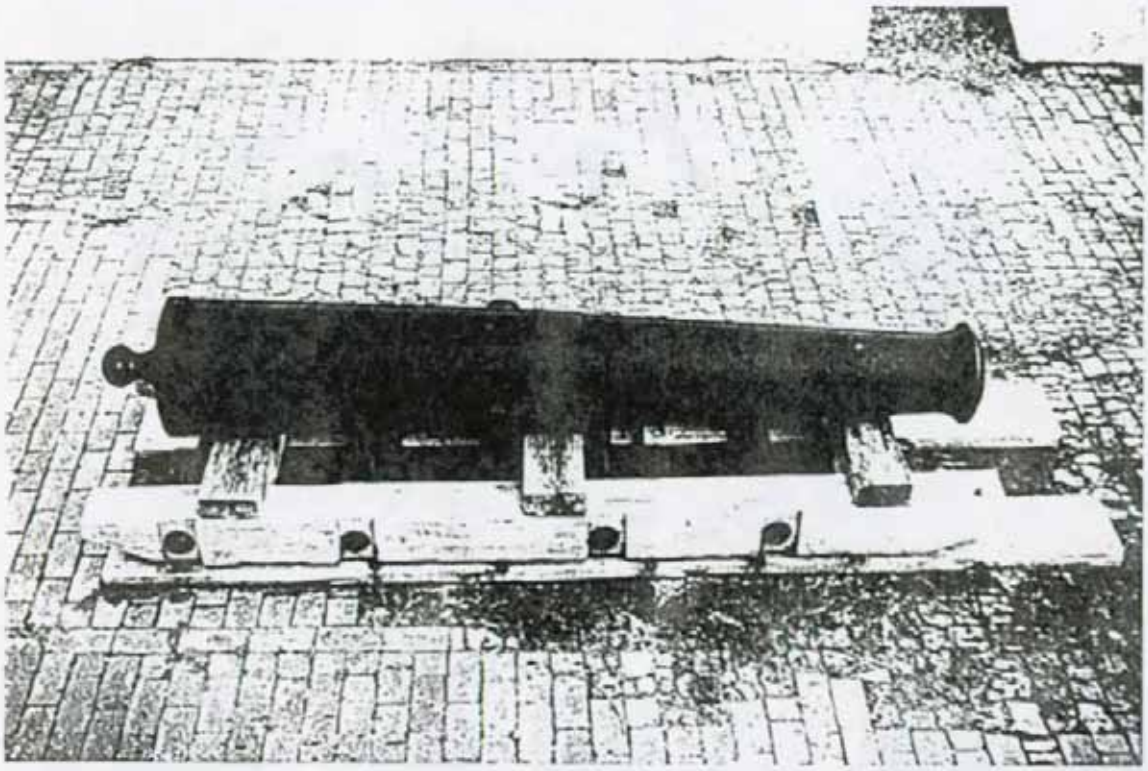
Of the heavy guns manufactured in the United States during the first half of the 19th Century, the 32-pdr smoothbore was by far the most prolific. Produced in a variety of models and lengths, the Navy alone purchased at least 2,947 such guns of ten different types. In addition to these, the Model of 1829, with 1,222 produced from 1829-39, was the most widely produced 32-pdr in America. Of these, 443 were produced at the Bellona Foundry, 311 at the Columbia Foundry, 221 at Fort Pitt, and 247 at the West Point Foundry.

Although well-suited for shipboard use, the Model 1829 was oftentimes used by the Army as a seacoast gun in coastal forts. Many survivors, in fact, bear the markings of Army inspectors. But with the introduction of ironclad warships during the Civil War, the 32-pdr smoothbore became virtually useless against these new, nearly invulnerable targets. Even the 32-pdrs that were rifled & banded by the Confederates could do little more than annoy an ironclad monitor. Relegated to a secondary role, their large bore was nevertheless effective at firing canister and spherical case. Despite their diminishing importance, they were widely used in both the North and the South, at least until larger and better guns could be procured.

**Projectiles** included solid shot (32 lbs), shell (23 to 24 lbs), case shot (30.75 to 33 lbs), canister (30 lbs), and grapeshot (33 lbs). During the war, the Army Ordnance Department purchased 37,494 shot, 76,452 shell, 43,794 case shot, and an undetermined amount of canister and grape shot. The respective costs for shot and shell were $1.28 and $1.23 apiece. The **service charge** for the gun was 8 pounds. The extreme **range** with solid shot fired at 30 degrees of elevation and with a 8 pound charge was 2,664 yards, or 1.5 miles. Time in flight at this range was approximately 11 seconds.

The pair of 32 pdrs on display inside Fort Moultrie were obtained from the Colonial National Historical Park in December 1963. Formerly mounted in the Yorktown National Cemetery, they were partially buried in concrete with their muzzles pointing upward. Their wartime record is unknown, but considering their postwar location, it is possible that they were used in the southeastern region of Virginia during the Civil War.

# 24-pounder, Model 1819 M-15



**Common name:** 24-pounder, Model 1819
**Identification:** 24-pounder, gun, smoothbore, seacoast, Model 1819)
**Place of manufacture:** West Point Foundry, Cold Spring, New York
**Material:** cast iron
**Number produced:** 1,125 **Known survivors:** 67

PRINCIPLE DIMENSIONS

**Length:** 124 inches **Weight:** 5,406 pounds
**Bore diameter:** 5.82 inches **Bore length:** 108 inches **Caliber of gun:** 18.6
**Weight of gun to shot:** 225.3
**Trunnion diameter:** 5.82 inches **Trunnion length:** 5 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | W:M<br>No 306 | *William Maynadier, inspector, 1828-71*<br>*registry number* |
| **Left trunnion:** | 1838 | *year of manufacture* |
| **Right trunnion:** | WP F<br>*(WP agglutinated)** | *West Point Foundry* |
| **Breech, bottom:** | 5475 | *weight in pounds* |
| **Knob, left side:** | XCI | *foundry number (91)* |
| **Knob, back:** | 2 | *quality rating assigned in 1846* |
| **Top of tube:** | U.S. | *U.S. Army* |

* the initials WP are co-joined

Although once a mainstay in American coastal defenses, the 24-pdr smoothbore was rapidly nearing obsolescence by the time of the Civil War. Totally outclassed by new threats such as ironclad warships, the 24-pdrs, much like the larger 32-pdrs, were being placed in positions of secondary importance. Many were used on both sides during the war, but usually as an expedient until larger guns could be obtained. Southern forces, of course, could not be so unforgiving. Willing to use anything that was available, many 24-pdrs were mounted in the Charleston area, either as smoothbores or converted rifles. The extreme **range** of the smoothbore fired at an elevation of 30 degrees was 2,480 yards, but the normal range (at 5 degrees) was 1901 yards, or 1.1 miles. The service **charge** was 6 pounds. Shells weighed about 17.5 pounds, while spherical case weighed roughly 22.5 pounds.

The 24-pdr located at Fort Moultrie was received in a trade from the Vicksburg National Military Park in March 1988. Fifty-five years earlier, that same 24-pdr had been transferred from the War Department to Vicksburg, shipped apparently from the Watervliet Arsenal in 1933.

In return for the 24-pdr, Fort Moultrie shipped a Bellona 42-pdr, Model 1821, to the Vicksburg park. That park, without question, was a far more appropriate home for the 42-pdr. Beginning in 1868 it had served as a monument at Vicksburg, marking the site of the Confederate surrender. On its tube was engraved the following: *SITE OF INTERVIEW BETWEEN MAJ GENL US GRANT U.S.A. AND LT GENL PEMBERTON JULY 4TH 1863.* In 1939 the 42-pdr was removed from its concrete base and replaced by a marble obelisk to mark the "surrender site." At first placed in storage, the tube was eventually shipped to the Fort Donelson National Battlefield twenty years later. In 1978 it was on the move again, coming to Fort Moultrie where it was placed on the wooden sled currently occupied by its replacement, the 24-pdr.

# Ordnance Testing

On February 28, 1844, one of the worst peacetime tragedies in the history of the U.S. Navy occurred when an experimental 12-inch wrought iron gun known as the "Peacemaker" burst aboard the USS *Princeton* killing seven men, including the Secretary of State and the Secretary of the Navy. Following this and a rash of other gun failures, an enormous flurry in ordnance testing was initiated. Remarkably, over three thousand weapons scattered at various forts and arsenals were ultimately scrutinized. Initially samples were taken from the left trunnion of these guns, where holes roughly 2-3 inches wide and 1.5 inches deep were drilled. Such holes can be seen on the pair of 32-pdrs inside Fort Moultrie today. These types of samples, however, were found to be unreliable, so future samples were generally taken from the muzzle face (other samples were unsuccessfully taken from the cascabel knobs). From these, the metal was tested for tensile strength and density, a chemical test was also performed on the filings. Fort Moultrie's 24-pdr, while on Governor's Island in New York Harbor, was tested in 1846. The specific gravity was found to be 7.056 while the tensile strength was 21,156 lbs per square inch - a figure that was typical for 24-pdrs, but about 40 percent less than 15-inch guns cast with the Rodman process during the 1860's.

The tensile strength was typically determined by using a device known as a transverse breaking machine. A sample of iron from the gun was screwed into the machine and a blade placed on top. Weights were then placed on top of the blade until it broke the sample. The tensile strength was then calculated from the diameter of the sample and the weight required to break it.

The 24-pdr's "test scar," where the sample had been trepanned, is still visible on the muzzle face. Normally these circular holes were packed with "a moistened composition of sal-ammoniac and fine iron turnings" which was supposed to quickly harden and fill the cavity. Despite efforts to conceal the scars, most of the surviving cast iron guns manufactured for the Federal government prior to 1847 still show signs of these tests. Incidentally, those weapons involved in the tests were assigned a quality rating which was subsequently stamped on or near the cascabel knob. Those receiving a "1" were considered the strongest guns, while those with a "2" were deficient in some respect or exhibited strength that was somewhat in doubt. Finally, a "3" indicated inferior quality of metal. The 24-pdr in today's collection has a "2" stamped on the back of the knob, a reflection perhaps of the gun's adequate yet unremarkable tensile strength (thanks to Wayne Stark for his help).

# 12-pounder, Confederate Napoleon M-16

**Common name:** 12-pounder, Confederate Napoleon
**Identification:** 12-pounder, gun, smoothbore, field, Confederate, Type 5
**Place of manufacture:** Charleston Arsenal, Charleston, SC
**Material:** bronze
**Number produced:** approx. 15 at the Charleston Arsenal **Known survivors:** 2

PRINCIPLE DIMENSIONS

**Length:** 72 inches **Weight:** 1218 pounds
**Bore diameter:** 4.62 inches **Bore length:** 62 inches **Caliber of gun:** 13.4
**Weight of gun to shot:** 101.5
**Trunnion diameter:** 4.2 inches **Trunnion length:** 3.1 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | 1218 | *weight in pounds* |
| **Left trunnion:** | CHARLESTON ARSENAL | *place of manufacture* |
| **Right trunnion:** | 1863 | *year of manufacture* |

12-pdr Napoleons, the most widely used field guns of the Civil War, were produced in several different versions in the South. The type on display at Fort Moultrie represents the most common form of Southern Napoleon. Most were made of bronze, but after 1863, due to the critical shortages of copper in the South, many Confederate Napoleons were made of cast iron. Although they could fire shot, shell, and spherical case at moderate distances (of up to one mile), these field guns were especially effective at shorter ranges using canister.

Charleston Arsenal pieces are rare. There is only one other known survivor, a Napoleon located in the town square of Middletown, Connecticut, marked 1864 and 1218 lbs. Fort Moultrie's Napoleon was received in a trade from the Fredericksburg National Military Park in return for a Federal Napoleon cast at Boston's Cyrus Alger & Co. in 1861. Formerly a war trophy owned by the State of New York, the Confederate Napoleon was shipped to the Fredericksburg park in 1974 from the Museum Clearing House, but apparently it remained in storage until its trade to Fort Moultrie in 1982. The Boston piece had been on the grounds of the U.S. Arsenal in Charleston when it was closed and the tube turned over to the Porter Military Academy. When that school prepared to move to a new campus in 1963, the gun was donated to Fort Moultrie.

# 12-pounder Napoleon M-17

**Common name:** 12-pounder Napoleon
**Identification:** 12-pounder, gun, smoothbore, field, Model 1857
**Other names used:** light 12-pounder; light gun-howitzer, Model 1857
**Place of manufacture:** Henry N. Hooper & Co., Boston
**Material:** bronze

PRINCIPLE DIMENSIONS

**Length:** 72.5 inches **Weight:** 1231 pounds
**Bore diameter:** 4.62 inches **Bore length:** 63.5 inches **Caliber of gun:** 13.7
**Weight of gun to shot:** 102.6
**Trunnion diameter:** 4.25 inches **Trunnion length:** 3 inches
**Number produced:** at least 371 Hooper Napoleons **Known survivors:** at least 134

MARKINGS

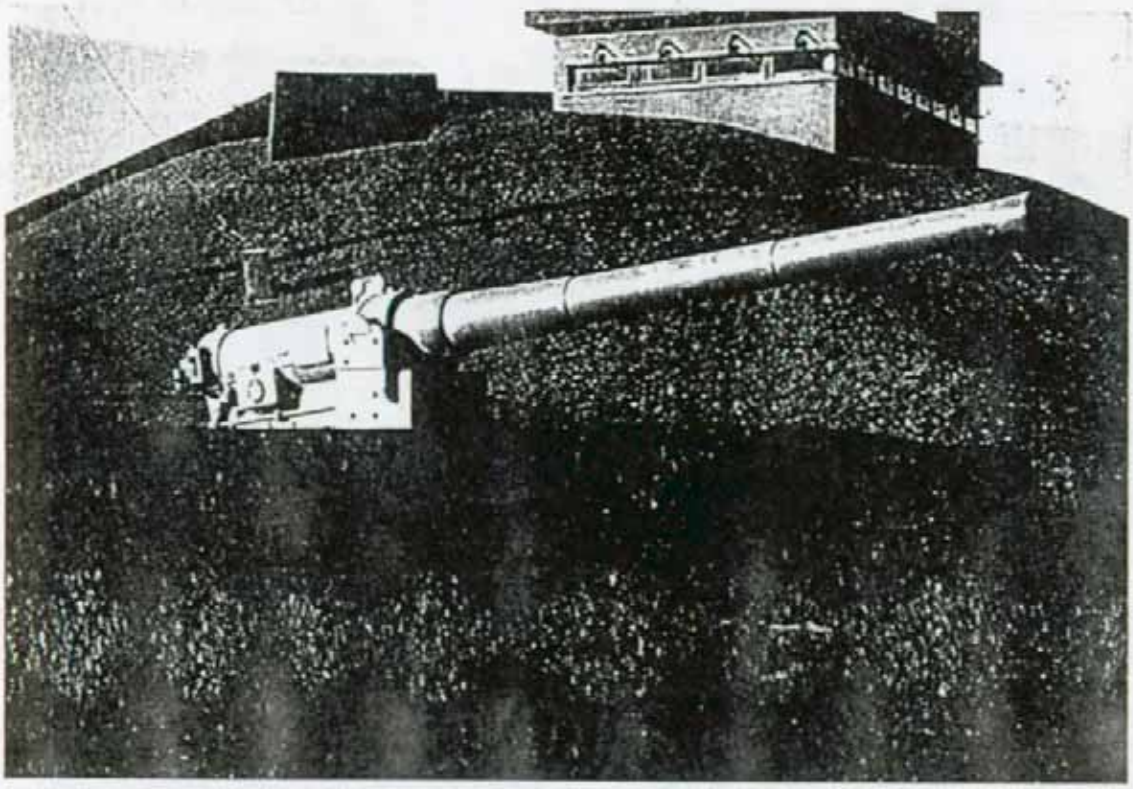
| | | |
|---|---|---|
| **Muzzle:** | No 273 | *registry number* |
| | HNH & Co | *Henry N. Hooper & Co.* |
| | 1231 lbs | *weight in pounds* |
| | 1863 | *year of manufacture* |
| | T.J.R. | *Thomas J. Rodman, inspector, 1841-71* |
| **Top of tube:** | U.S. | *U.S. Army* |

There were over 1,100 bronze 12-pdrs produced in the North during the war, at an average **cost** of $569 apiece. The production of ammunition was as follows: 329,352 solid shot (average cost $0.60 each), 344,080 shell ($0.46 each), and 542,743 spherical case shot ($0.36 each). **Range** firing solid shot at an elevation of five degrees with a **service charge** of 2.5 pounds was 1,680 yards, or nearly one mile. Shells weighed approximately 8 pounds while case shot varied from 11-12 pounds, and canister roughly 9 pounds. Complete stands of 12-pdr grape shot have also been discovered near Confederate emplacements at Vicksburg and Savannah, but such rounds were probably never used by Northern forces.

This piece is presently in storage awaiting a new carriage. In the past it was mounted inside Fort Moultrie, first atop a concrete pedestal and later on a reproduction carriage. For years it was fired during living history demonstrations, but eventually the carriage began to rot and could no longer support the gun.

The Hooper Napoleon was one of three tubes left on the grounds of the U.S. Arsenal in Charleston when it was turned over to the Porter Military Academy. In 1963 these three guns were donated by the school to Fort Moultrie.

# 4.72-inch Armstrong rapid fire gun A



**Common name:** 4.72-inch Armstrong rapid fire gun
**Identification:** Armstrong, 4.72-inch, breech-loading, rapid fire gun, rifle, seacoast
**Place of manufacture:** Sir W.G. Armstrong, Whitworth, & Co., Elswick, England
**Material:** steel

PRINCIPLE DIMENSIONS

**Length:** 194 inches **Weight:** 4,676 pounds
**Bore diameter:** 4.72 inches **Bore length:** 189 inches **Caliber of gun:** 40.0
**Rifling:** 22 x 22, straight, with right gaining twist (increasing from one turn in 100 calibers at the breech to one turn in 34.4 calibers toward the muzzle)

MARKINGS

| | | |
|---|---|---|
| **Top of Breech:** | SIR. W.G. ARMSTRONG. | *William George Armstrong,* |
| | WHITWORTH & Co. Ltd. | *Joseph Whitworth, manufacturers* |
| | WEIGHT 4676 LBS | *weight in pounds* |
| | 1898 | *year of manufacture* |
| | No. 12124 | *foundry number* |

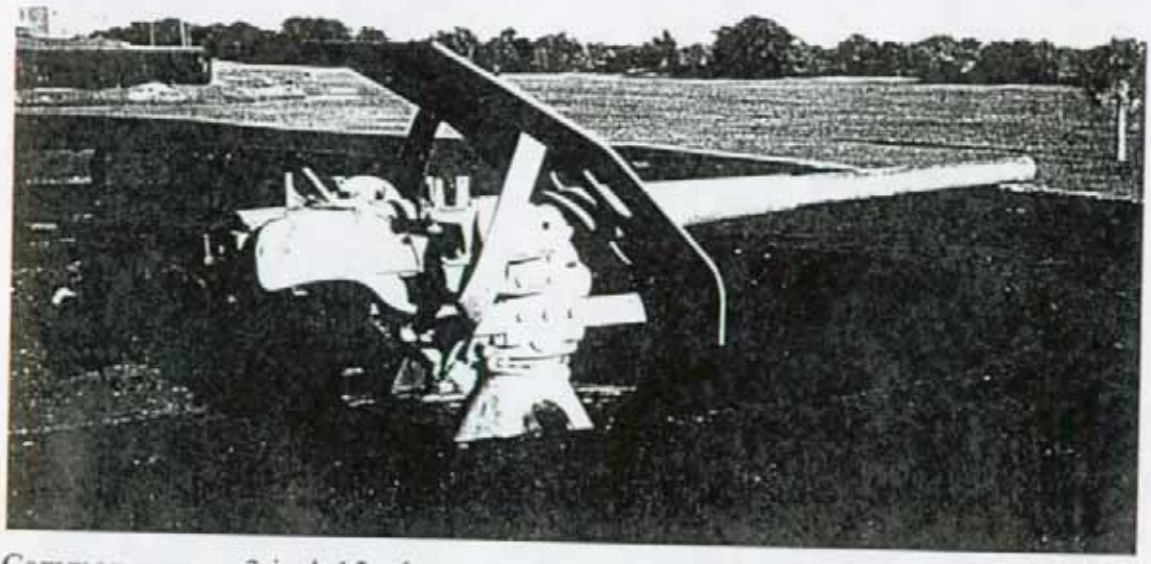
Tragically, very few guns produced during the Endicott period of American fortifications have managed to survive. Scrap metal drives during World War II were extremely efficient at nearly eradicating an entire era of remarkable seacoast ordnance.

The 4.72-inch Armstrong currently at Fort Moultrie was received in a trade from the National Guard Armory in Westerly, Rhode Island. Manufactured in England in 1898 and subsequently purchased by the United States, it was mounted in Battery Talbot, a two-gun rapid fire battery near Fort Adams on Narragansett Bay. Both Armstrongs were removed in 1917; one is currently on display at Equality Park in Newport, Rhode Island. The other was sent to Westerly and was used for training purposes by Battery E, 238th Regiment, National Guard Coast Artillery. Initially used indoors, the shield was removed since it proved to be too heavy for the wooden floors. By about 1940 the gun was taken outside and set up as a monument. In February 1977 the Armstrong was traded to Fort Moultrie. In return an 8-inch Parrott rifle was shipped from the fort and is currently located outside Westerly's National Guard Armory *(see Chapter Four)*.

The **service charge** was approximately 5.5 pounds of cordite. The projectile weighed 45 pounds, while the muzzle velocity was 2,204 feet per second.

Battery Bingham was begun in April 1898 and its pair of Armstrong rapid fire guns placed atop pedestal mounts in October. Completed the following year at a cost of $6,000, it was transferred to the artillery in November 1899. Its primary purpose was to protect the nearby minefield, or to be more precise, to prevent enemy minesweepers from attempting to remove or destroy the mines. The battery was named in honor of Lt. Horatio S. Bingham, 2nd U.S. Cavalry, killed in action against the Sioux Indians, near Fort Kearny, Dakota Territory, on December 6, 1866. The two Armstrongs were dismounted by 1925; their disposition is unknown.

# 3-inch 15-pdr gun, Model 1911, dummy B



**Common name:** 3-inch 15-pdr gun, Model 1911, dummy
**Identification:** 3-inch, breech-loading, smoothbore, seacoast, Model 1911, dummy
**Place of manufacture:** Watervliet Arsenal, Watervliet, New York
**Material:** steel **Length:** 170 inches **Bore diameter:** 3 inches

MARKINGS

**Breech block:** DUMMY 3 INCH 15 PDR GUN. MOD. OF 1911 No 1
ORD. DEPT. U.S.A.
WATERVLIET ARSENAL 1912

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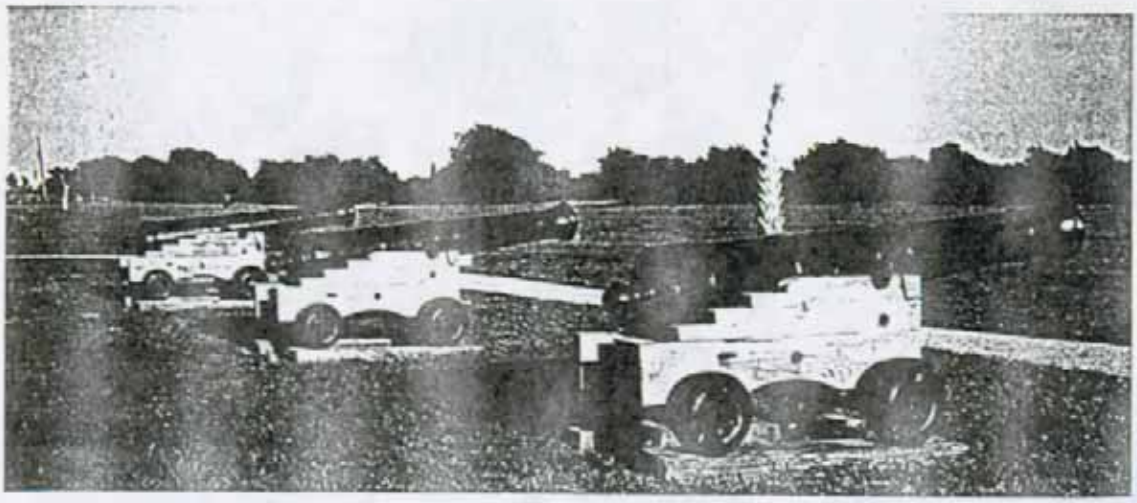
The 15-pdr rapid fire gun mounted atop Battery McCorkle was received from the National Park Service's Harpers Ferry Center in July 1975. As a dummy, it was designed for training purposes only. It is not a functional weapon and has no rifling.

Battery McCorkle was begun in January 1899 and transferred to the artillery in July 1901 at the cost of $9,390. The battery was named in honor of Lt. Henry L. McCorkle, 25th U.S. Infantry, killed in action at El Caney, Cuba, on July 1, 1898. The rapid-fire 15-pdrs were mounted atop balanced pillar mounts which allowed the guns to be rotated and lowered into storage positions. Using a mixed battery of guns, the M1902 could be fired with a 5 pound charge at a maximum elevation of 15 degrees giving a range of 8,771 yards, or 5 miles. The M1898 offered 12 degrees of elevation and a range of 7,849 yards, or 4.5 miles. All three guns were dismounted by 1921. One was remounted in 1923, a M1898 (ser. #13) was subsequently removed from the fort and donated, and a M1903 (ser. #65) was sold as scrap.

# 90mm M1A2 anti-aircraft gun C

**Common name:** 90mm M1A2 anti-aircraft gun
**Identification:** 90mm, breech-loading, rifle, anti-aircraft, M1A2
**Place of manufacture:** the Wheland Co., 1943
**Serial number:** 2025 **Weight:** 2,505 pounds **Length:** 184 inches

Received from Ft. Gordon, Georgia, in September 1973; currently atop Battery Jasper on a M1A2 mount.



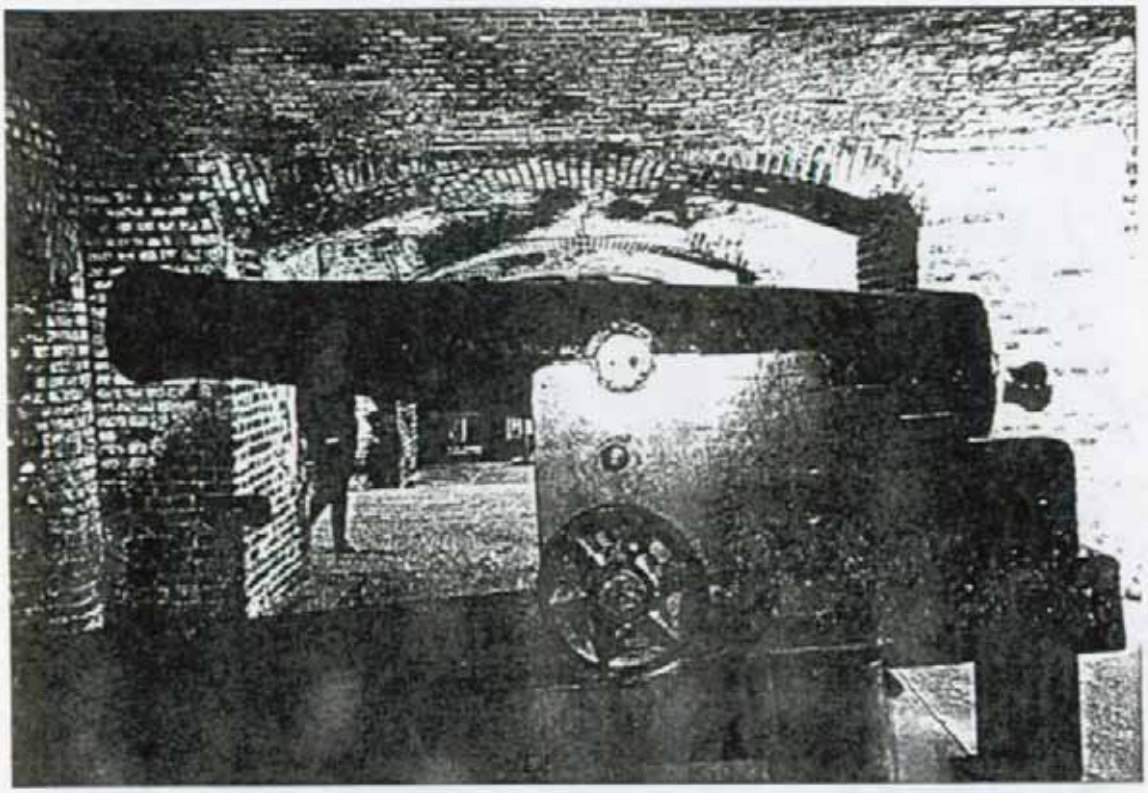
**Reproduction 18-pdrs, site of Fort Moultrie I**

# Chapter Two

# The Guns of Fort Sumter

| | |
|---|---|
| S-1 | 42-pounder, Model 1845 |
| S-2 | 42-pounder, Model 1845, rifled & banded |
| S-3 | 15-inch Rodman (left) |
| S-4 | 8-inch Columbiad, Model 1844 |
| S-5 | 15-inch Rodman (right) |
| S-6 | 10-inch Seacoast Mortar, c. 1807 |
| S-7 | 100-pounder Parrott |
| S-8 | 100-pounder Parrott |
| S-9 | 100-pounder Parrott |
| S-10 | 100-pounder Parrott |
| S-11 | 100-pounder Parrott |
| S-12 | 100-pounder Parrott |
| S-13 | 100-pounder Parrott |
| S-14 | 100-pounder Parrott |
| S-15 | 100-pounder Parrott |
| S-16 | 100-pounder Parrott |
| S-17 | 100-pounder Parrott |
| S-18 | 10-inch Columbiad, Model 1844, rifled & banded |
| S-19 | 8-inch Parrott |
| S-20 | 12-pounder Mountain Howitzer, Model 1835 |

# 42-pounder, Model 1845 S1



**Common name:** 42-pounder, Model 1845
**Identification:** 42-pounder, gun, smoothbore, seacoast, Model 1845
**Other names used:** 42-pounder, Pattern of 1845; Model 1841
**Place of manufacture:** Cyrus Alger & Co., Boston
**Material:** cast iron
**Number produced:** 318 **Known survivors:** 29

PRINCIPLE DIMENSIONS

**Length:** 129 inches **Weight:** 8,500 pounds
**Bore diameter:** 7 inches **Bore length:** 110 inches **Caliber of gun:** 15.7
**Weight of gun to shot:** 202
**Trunnion diameter:** 7 inches **Trunnion length:** 6.5 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | B.H.<br>2 | *Benjamin Huger, inspector, 1832-61*<br>*registry number* |
| **Left trunnion:** | 185? | *assumed to be* 1856, *year of manufacture* |
| **Right trunnion:** | C.A. & Co.<br>Boston | *Cyrus Alger & Co.*<br>*place of manufacture* |
| **Breech, lower bottom:** | 8500 | *weight in pounds* |
| **Top of tube:** | U.S. | *U.S. Army* |

The 42-pdr, Model 1845, was a class of gun which never seemed to enjoy enormous popularity. A previous version, the Model of 1840, was produced in limited numbers, and for its day was one of the largest seacoast guns produced in America. But by 1844 the 42-pdr was supplanted by the much larger 8- and 10-inch columbiads. Although the 42-pdr was a reliable gun, it was soon reduced to a position of secondary importance. As a result, production of the 42-pdr virtually came to an end.

Just as interest in the 42-pdr was beginning to wane, some slight modifications were made in 1845 and a new designation created. Mysteriously, though, no guns were cast in this new pattern apparently until 1855. Suddenly in that year there was a rush of orders, with more than 330 42-pdrs of the 1845 model being ordered from the West Point, Tredegar, Cyrus Alger, Fort Pitt, and Bellona Foundries. Despite this resurgence, and even before the contract with the Fort Pitt Foundry could be completed, the 42-pdr was unceremoniously suppressed by order of the War Department on February 9, 1861. Clearly the new 8-inch Rodman, Model 1861, was a far more powerful, stronger, yet no heavier alternative to the much maligned 42-pdr.

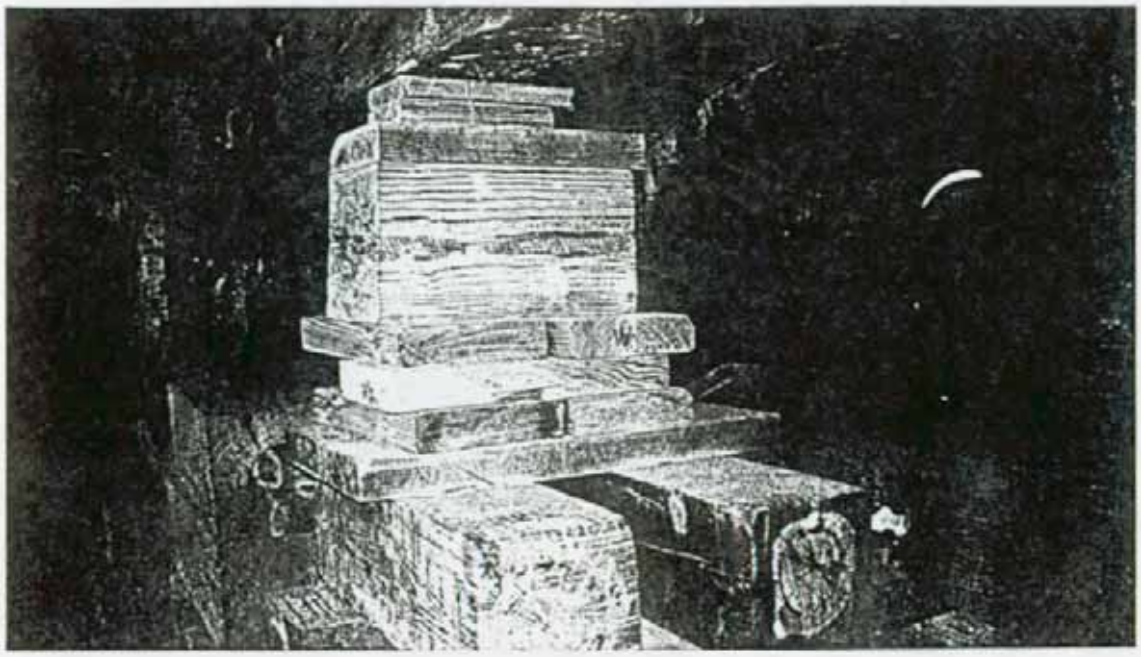
Under the pressure of war, many of these older 42-pdr smoothbores were pressed into service, especially in the South where production of heavy ordnance was rarely able to keep pace with demand. Even in the North, enough 42-pdrs were placed in forts and batteries to justify the purchase of over 30,000 projectiles for these guns, at an average cost of $1.23 per round. Still other Northern 42-pdrs were rifled on the James pattern, including a pair used in the siege and reduction of Fort Pulaski in 1862.

The **range** of the 42-pdr firing solid shot and using a **service charge** of 10.5 pounds at an elevation of 10 degrees was 2,805 yards, or 1.6 miles. Exploding shell, spherical case, canister, and grape shot could be fired as well. Under contract, the **cost** of the Model 1845 was a flat rate of $0.06 per pound, or roughly $510 per gun.

The 42-pdr at the fort today was unexpectedly found during the excavation of 1959. Workers removing sand from behind the ruins of the left face casemates discovered the gun buried on the level of the original parade ground. Since a gun fitting this description had never appeared on a postwar ordnance return for the fort, it is possible that the piece had become buried during the Civil War, perhaps at the height of the Federal bombardments, and then lost under earth and debris until its recovery nearly a hundred years later.

*(for more information on this piece, see Chapter Four)*

# 42-pounder, Model 1845, rifled & banded S-2



**Common name:** 42-pounder, Model 1845, rifled & banded
**Identification:** 42-pounder, gun, smoothbore, seacoast, Model 1845, rifled & banded by the Confederates
**Other names used:** 42-pounder, Model 1841, rifled & banded
**Place of manufacture:** unknown; possibly Cyrus Alger & Co., Boston
**Material:** cast iron tube; one concentric layer of wrought iron reinforcing bands
**Number produced:** 318 **Known survivors:** 29

## PRINCIPLE DIMENSIONS

**Length:** 129 inches **Weight:** approximately 9,500 pounds
**Bore diameter:** 7 inches **Bore length:** 110 inches **Caliber of gun:** 15.7
**Rifling:** 7 x 7, inclined plane, with right twist **Weight of gun to shot:** approx. 110
**Length of jacket:** 30.25 inches **Thickness of bands:** 1.75 inches
**Trunnion diameter:** 7 inches **Trunnion length:** 6.5 inches

## MARKINGS

All markings are obscured or destroyed by rust and pitting.

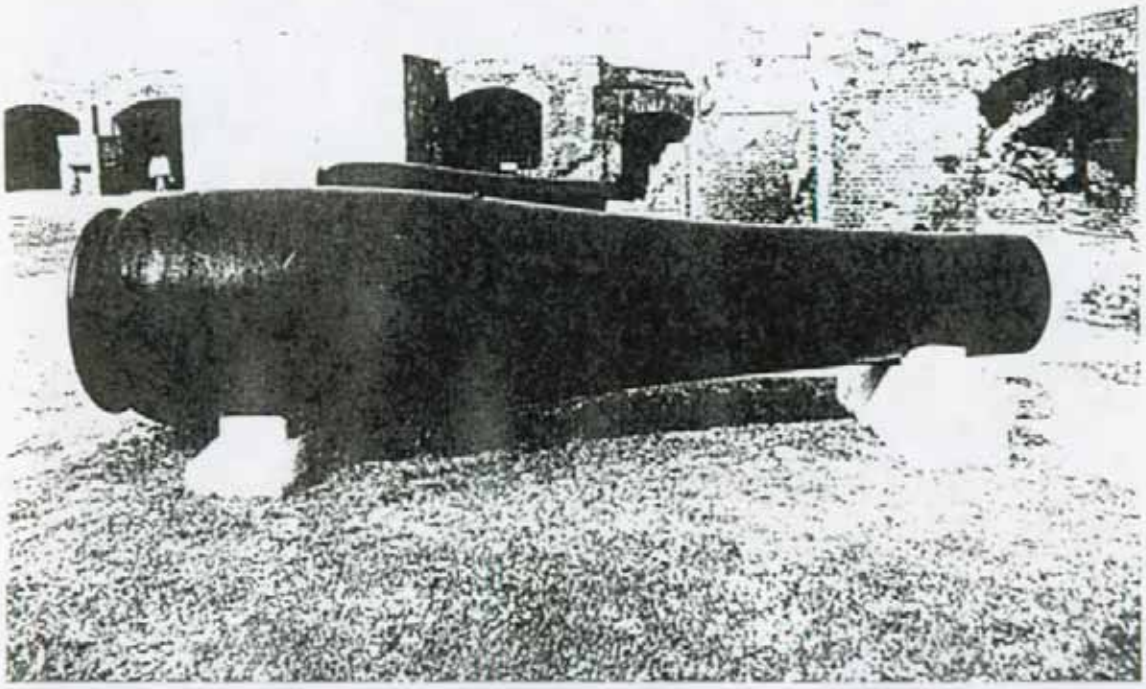
Many of the 42-pdrs produced prior the Civil War were later converted to rifles. Such a conversion, of course, significantly increased the range, accuracy, and hitting power of the gun. It also increased the weight of the projectile, in this case roughly doubling the weight from 42 to a respectable 84 pounds. Those 42-pdrs rifled on the James pattern in the North could fire solid shot at ranges greater than two miles (using 8 pound charges at 10 degrees of elevation). James projectiles were produced in moderate quantities in the North, with 9,374 shot purchased by the Army at an average cost of $7.25 apiece and 1,550 shell at $6.80 each. Rifled 42-pdrs were pressed into service by the Federal Navy as well, a fact confirmed by the discovery of a pair of these guns, cast at the Fort Pitt Foundry in 1856, on board the wreck of the ironclad gunboat USS *Cairo.*

The 42-pdr on display at Fort Sumter is a typical example of a smoothbore that was rifled & banded in the South. Unfortunately there are no markings to indicate either its place of manufacture or the location where it was later converted to a rifle. The rifling is the 7 x 7 hook-slant variety, the same that was used with the much heralded Brooke rifles - and as a result probably places its conversion at Richmond rather than Charleston, either at the Tredegar Foundry or the Richmond Naval Ordnance Works. Exploding shells for the rifled 42-pdr ranged from 51 to 84 pounds, depending on the length and type of projectile *(for more information on rifled & banded of guns, see M-11 and S-18).*

Of the 29 surviving Model 1845 42-pdr smoothbores, 18 are known to be rifled, or roughly 62 percent. While only half of the surviving rifles are reinforced with banding, there are two other 42-pdrs which are banded but *not rifled.* One such gun was banded in Charleston at the shop of James Eason & Bros. It was reportedly removed from the shallow waters surrounding Fort Sumter following the hurricane of 1911. It is presently on display in front of the Preston County Courthouse in Kingwood, West Virginia.

By the time of the Federal ironclad attack of April 7, 1863, seven rifled 42-pdrs were mounted at Fort Sumter. During that important battle they fired a total of 140 bolts at their armored adversaries, occasionally with telling effect. Gradually, though, with the introduction of long-range Parrott rifles on Morris Island, Fort Sumter's guns were removed and redistributed throughout the harbor in less exposed positions. Nevertheless, four rifled 42-pdrs were still at Sumter at the end of the war (one was on hand but not mounted). When Union forces entered the fort in 1865, they found a pair mounted in the vicinity of the left shoulder angle, placed there by the Confederates to help support the new sally port created along the upper left flank. Another was mounted along the right face in the so-called "three-gun battery," the construction of which prompted one of the heaviest bombardments of the war beginning October 26, 1863. Despite firing more than 18,000 rounds, the Federals were unable to destroy this battery. During the postwar years, three of the rifled 42-pdrs were presumably removed from the fort *(see Chapter Three).* The fourth remained on the island, serving for many years as a monument outside the left flank until it was finally moved to its current position in 1961.

# 15-inch Rodman S-3 & S-5



**Common name:** 15-inch Rodman
**Identification:** Columbiad, 15-inch, smoothbore, seacoast, Model 1861
**Other names used:** 15-inch Columbiad, Model 1861
**Place of manufacture:** Scott Foundry (Seyfert, McManus & Co.), Reading, PA
**Material:** cast iron
**Number produced:** 322 **Known survivors:** 25

PRINCIPLE DIMENSIONS

**Length:** 192 inches **Weight:** 50,120 pounds (S-3); 49,440 pounds (S-5)
**Bore diameter:** 15 inches **Bore length:** 165 inches **Caliber of gun:** 11
**Weight of gun to shot:** 116.0 (S-3); 114.4 (S-5)
**Trunnion diameter:** 15 inches **Trunnion length:** 4.5 inches

| | MARKINGS | | |
|---|---|---|---|
| | S-3 | S-5 | |
| **Muzzle:** | No 22 | No 23 | *registry number* |
| | W.P. | W.P. | *William Prince, inspector, 1864-80* |
| | S.F. | S.F. | *Scott Foundry* |
| | 1867 | 1867 | *year of manufacture* |
| | 50120 | 49940 | *weight in pounds* |

Massively built, the 15-inch Rodman smoothbore represented the pinnacle in muzzle-loading ordnance. With its development the long evolution of the cast iron smoothbore had finally reached its apex. . . and its end. Following the Civil War a new evolution was to begin, the development of the steel breech-loading rifle, which in time would make even the mighty Rodman obsolete.

During the war the prevailing philosophy in the North favored the production of massive smoothbore guns rather than rifles. Unlike in Europe and the Southern states, there tended to be a great deal of hesitation in the North to adopt the rifle for seacoast or naval use. From their point of view, their reluctance was understandable. The rifle was typically more difficult and expensive to manufacture than the smoothbore, its ammunition was a source of numerous problems, and the guns were far more likely to burst or wear prematurely. Furthermore, the cherished practice of ricochet firing over water, a very useful tactic for seacoast and naval guns, was practically impossible with rifled projectiles. Some viewed the rifled gun as nothing more than an expensive adjunct to the time-tested smoothbore, to be used primarily for its long range capabilities - or at least until the enemy was close enough to be destroyed at close quarters by the larger smoothbores. Clearly, what many leaders in the North wanted was the crushing effect of a large smoothbore against a target, compared to the penetrating power of a rifle.. It was better, they thought, to heave in the side of a warship with a 400 pound shot rather than punch a neat 7-inch hole with a 120 pound rifled bolt.

The pair of 15-inch Rodmans on display at Fort Sumter, along with the pair at Fort Moultrie, were the final four such guns produced at the Scott Foundry. A total of 24 was produced there, along with 153 at Cyrus Alger & Co. and 145 at the Fort Pitt Foundry. Manufactured using the Rodman process of hollow casting, these guns were remarkably strong and reliable. The tensile strength of these four guns ranged from 32,671 to 34,232 pounds per square inch - more than adequate since the average pressure exerted during firing was typically 19,500 pounds. Each was proofed before being accepted by the Army, being fired twice using a 450 pound shot and 100 pounds of Mammoth powder.

The 15-inch Rodman had no preponderance (its weight was evenly distributed front and back upon the trunnions). This arrangement made elevating the gun easier and put less strain on the carriage when firing. These guns also featured parallel vents. As a result, if one became unserviceable the other could be opened (it was typically filled with lead) in the field without appreciable delay. Theoretically, since parallel vents were drilled off-center, they

also tended to make the gun stronger. In contrast, a single vent drilled *in the axis* of the bore, was a potential source of weakness and cracking.

The **range** at 25 degrees of elevation firing a 315 pound shell with a 50 pound charge was 4,680 yards, or 2.6 miles. When the gun was first introduced, a **service charge** of 35 pounds was used, but due to the remarkable strength of the massive Rodman, it soon became clear that more powder could be used. Eventually the charges were increased to 40, 50, 60, and even *100* pounds, depending on the range, projectile, and type of target engaged. Likewise, initial velocities varied from 1,282 to 1,534 feet per second, depending on the size and type of charge/projectile used.

The 15-inch Rodman was best suited to fire solid shot and exploding shell. The solid projectiles weighed an impressive 450 pounds. There were, however, difficulties associated with the production of these large rounds. Not unlike the problems encountered when producing guns with the traditional method of solid casting, flaws would sometimes develop during the casting of 15-inch solid projectiles. To overcome this problem, cored shot was developed which had a small hollow cavity on the inside of the projectile; like the guns themselves, these cored shot were frequently cast using the Rodman method of hollow casting. Generally weighing from 400 to 410 pounds, the loss in weight was insignificant, especially in light of the improved initial velocity and reduced strain on the gun when firing these cored rounds. The Army purchased a total of 1,659 shot at an average cost of $20.48 per projectile.

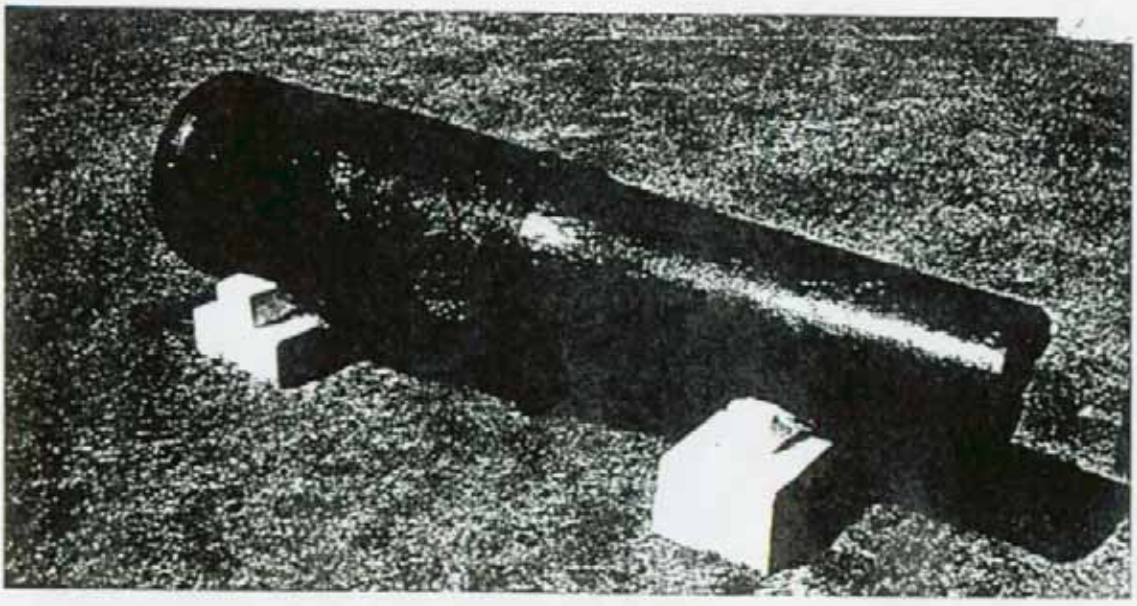
Exploding shells were used with the 15-inch Rodman as well, varying in weight according to the target engaged. When the greatest possible explosive effect was desired, the walls of the shell were made as thin as practical. The thinnest walls were 2 ½ inches thick, which allowed for an internal bursting charge of 16 to 18 pounds, and an overall weight of 305 pounds. Shells that had walls 5 inches thick were more effective at battering their target and weighed as much as 410 pounds. The Army purchased a total of 22,542 shells at an average cost of $15.54 per projectile.

The ratchets cut in the breech of the gun allowed for an elevation of approximately 28.5 degrees. It should be remembered, though, when fired at this maximum elevation, the rate of fire was slowed considerably. The tube had to be depressed, sponged, the ammunition loaded, the tube elevated again, and the gun moved into battery. The time to complete this cycle varied from 3 ½ to 4 minutes. When the gun was fired horizontally, the rate of fire was much better, usually taking only 1 ½ to 2 minutes. A full crew numbered twelve men: one chief of detachment, one gunner, and ten cannoneers.

As would be expected, the **cost** of the 15-inch Rodman was considerable. The average price was $6,727 per gun, or roughly $0.13 per pound.

The weight of the center-pintle **chassis** was 15,540 pounds, or 7.8 tons, while the weight of the front-pintle chassis was 17,000 pounds, or 8.5 tons. The same upper **carriage** was used for both and weighed 5,800 pounds, or 2.9 tons. The axis of the trunnions stood approximately 8 ½ feet above the pintle block and nearly 11 feet above the terreplein.

# 8-inch Columbiad, Model 1844 S-4



**Common name:** 8-inch Columbiad, Model 1844
**Identification:** Columbiad, 8-inch, smoothbore, seacoast, Model 1844
**Remarks:** right trunnion, most of right rimbase, cascabel knob, and approximately 14 inches of muzzle missing
**Place of manufacture:** unknown **Material:** cast iron

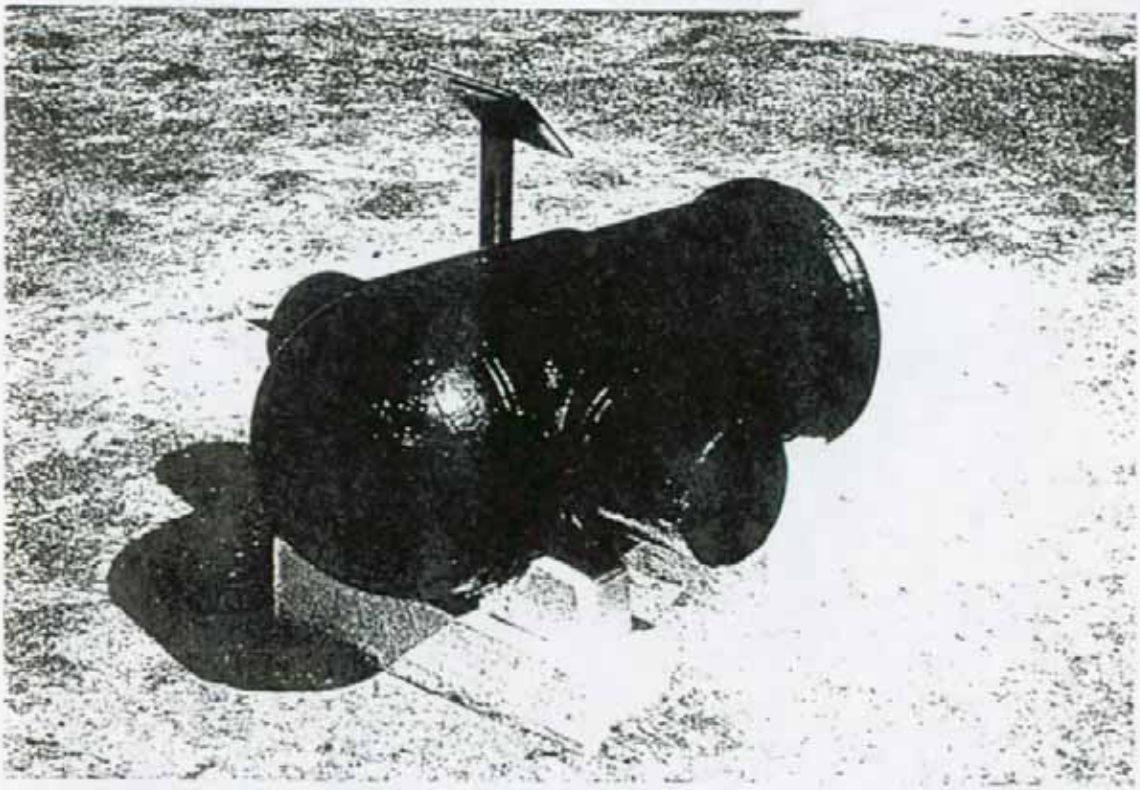
PRINCIPLE DIMENSIONS

**Length:** 107.5 inches (the original length was 124 inches)
**Weight:** unknown (the original weight was approximately 9,240 pounds)
**Diameter of bore:** 8 inches **Length of bore:** originally 111 inches
**Caliber of gun:** originally 13.9 **Weight of gun to shot:** approximately 144.4
**Type of chamber:** cylindrical - diameter 6.4 inches, length 11 inches
**Trunnion diameter:** 8 inches (right trunnion missing) **Trunnion length:** 6.5 inches

Due to the poor condition of the gun, there are no markings available. Found buried behind Fort Sumter's left face casemates during the excavation of 1959, the damaged smoothbore was probably discarded there by the Confederates or simply buried amid the rubble caused by the Federal bombardments of the fort *(see Chapter Three)*.

The solid shot for this type of gun weighed approximately 64 pounds, shells were roughly 50 pounds, and grapeshot 71 pounds. The **service charge** was 8 pounds, and the range approximately 1.8 miles. Several of these smoothbores were converted into rifles by the Confederates *(see M-11)*.

# 10-inch Seacoast Mortar, c. 1807 S-6



**Common name:** 10-inch Seacoast Mortar, c. 1807
**Identification:** Mortar, 10-inch, seacoast, smoothbore, c. 1807
**Other names used:** 10-inch seacoast mortar, Model 1819*
**Place of manufacture:** Columbia Foundry, Georgetown
**Material:** cast iron

* The designation of M1819 is presumably incorrect since the mortar bears the initials of Henry Foxhall. Having sold the Columbia Foundry in 1815, it is unlikely that any weapon would bear his initials after that year.

PRINCIPLE DIMENSIONS

**Length:** 45.5 inches **Weight:** 3,861 pounds
**Diameter of bore:** 10 inches **Length of bore:** 35.5 inches
**Caliber of gun:** 3.5 **Weight of gun to shell:** 17.7
**Trunnion diameter:** 9.75 inches **Trunnion length:** 9 inches

MARKINGS

| | | |
|---|---|---|
| **Top of tube:** | HF *(agglutinated)* | *Henry Foxhall, owner, Columbia Foundry* |
| | No 4 | *registry number* |
| | 34-1-25 | *weight in hundredweights* |

The question has been raised, "Is this the mortar that fired the first shot of the Civil War?" Although such a distinction would make it one of the most important artifacts in existence today, there simply is no way to prove or determine its connection to that important event. Other than the assurance that the famous shot fired in the early morning hours of April 12, 1861, came from a 10-inch seacoast mortar, there is no way to be certain *which* mortar was used. Unfortunately, no one bothered or thought to record the mortar's serial number or anything which could help to identify the weapon. Even the model type is a mystery. In reality, the odds do not favor a positive match.

There is a strong possibility that today's mortar was not even in the Charleston area during the 1861 battle. Shortly after the fall of Fort Sumter, in a rare act of generosity, Governor Francis Pickens allowed General Beauregard to ship seven (possibly eight) mortars to Pensacola to be used in an anticipated bombardment of Fort Pickens. At this early stage of the war, these mortars were property of the state, and permission was therefore required to remove them from South Carolina. Judging by later correspondence, it appears unlikely that Pickens or Beauregard was able to have them returned. In the meantime, other 10-inch seacoast mortars were obtained from various points in the Confederacy, with a total of ten received by July 1863. Amid this shuffle, the famous mortar, in a sense, simply disappeared.

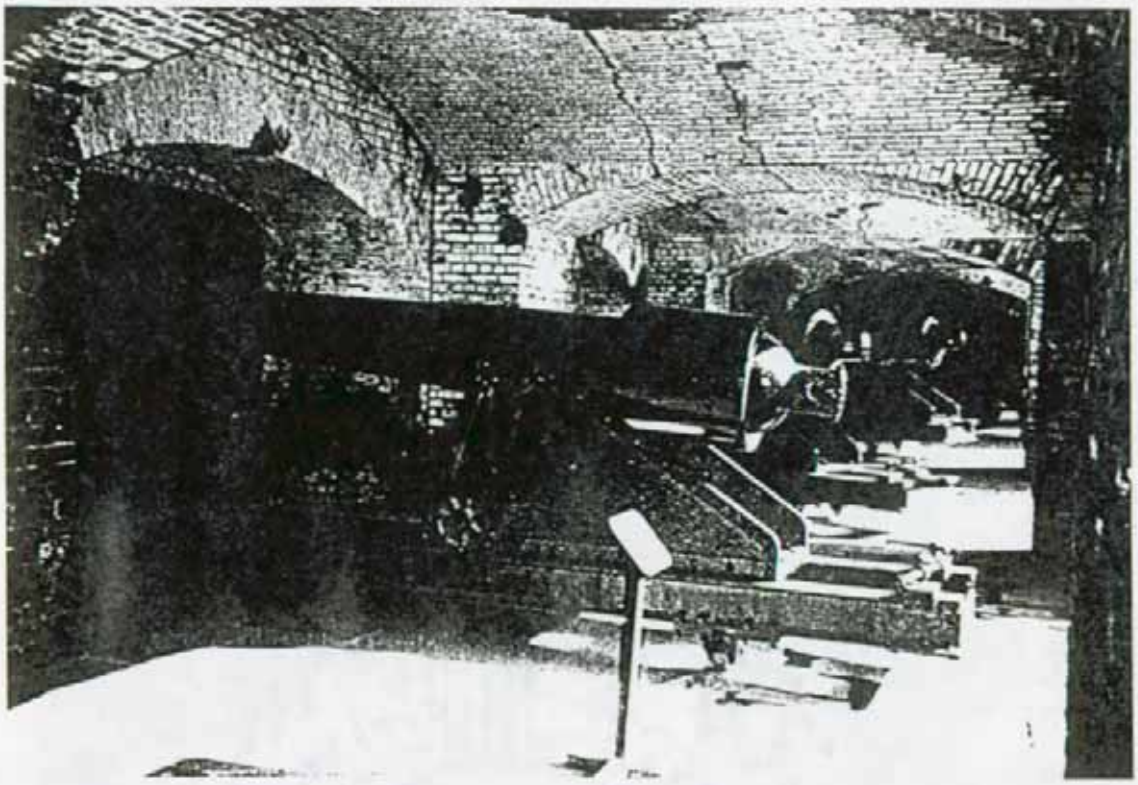
What is certain is that the mortar currently on display was found during the excavation of Fort Sumter's left face in 1959. Workers removing sand and earth from behind the ruins of the casemate piers unexpectedly found three weapons (including the damaged 8-inch columbiad and the 42-pdr smoothbore) buried midway along the face at the approximate level of the parade ground. But once again a mystery develops. Why were these weapons found in such a place? How long had they been there? Since they did not appear on any known postwar ordnance returns, it appears likely that their presence there was unknown. The Confederates must not have realized their whereabouts either - otherwise they certainly would have used the two undamaged weapons to some better advantage. A logical explanation is that they were unintentionally buried during the height of the Federal bombardments in 1863. Amid the ensuing destruction and confusion, weapons such as these could easily have been lost in the rapidly-growing piles of rubble and debris.

The 10-inch seacoast mortar could fire a 85-98 pound exploding projectile at a **range** of 4,250 yards, or 2.4 miles. These mortars were generally fired from an elevation of 45 degrees and used a **service charge** of 10 pounds. Mortars also exerted less shock on their shells than did guns. As a result, the walls of mortar shells were typically thinner than standard projectiles, thus allowing for greater bursting charges inside the mortar rounds. Interestingly, during the Federal ironclad attack of 1863, the Confederates filled their 10-inch mortar rounds with *lead* rather than powder. Certainly a clever idea, their goal was to use this added weight to penetrate the decks of the monitors; their results, though, are unknown.

# 100-pounder Parrott

S-7 through S-17

11 weapons total



**Common name:** 100-pounder Parrott
**Identification:** Parrott, 6.4-inch, rifle, seacoast, Model 1861
**Remarks:** S-12 & S-14 have navy markings
**Other names used:** 6.4-inch Parrott
**Place of manufacture:** West Point Foundry, Cold Spring, New York
**Material:** cast iron tube; wrought iron reinforcing jacket
**Number produced:** 585 (233 for the Army, 352 for the Navy)
**Known survivors:** 85 (53 for the Army, 30 for the Navy, 2 Spanish navy variants)

PRINCIPLE DIMENSIONS

**Length:** 155 inches **Weight:** approximately 9,700 pounds
**Bore diameter:** 6.4 inches **Bore length:** 130 inches **Caliber of gun:** 20.3
**Rifling:** 9 x 9, straight, with right gaining twist **Weight of gun to shot:** approx. 97
**Length of jacket:** 27 inches **Thickness of jacket:** 3 inches
**Trunnion diameter:** 8 inches **Trunnion length:** 5 inches

MARKINGS

| | | |
|---|---|---|
| **S-7** | No 188 | *registry number* |
| | 1864 | *year of manufacture* |
| **Muzzle:** | W.P.F. | *West Point Foundry* |
| | 6.4 IN | *caliber of gun* |
| | R.M.H. | *Richard M. Hill, inspector, 1861-76* |
| | 9753 | *weight in pounds* |
| **Left trunnion:** | 100 PDR | *designation of gun* |
| **Right trunnion:** | R.P.P. | *Robert Parker Parrott* |
| **Right rimbase:** | 594 | *foundry number* |
| **Jacket, upper rear:** | PATENTED 1861 | *year process patented* |
| **Top of tube:** | U.S. | *U.S. Army* |

Parrott rifles S-8 through S-17
(many markings are unreadable due to severe pitting and rusting)

| | | |
|---|---|---|
| S-8 | Muzzle: | No 183 W.P.F. 6.4 IN 1864 R.M.H. 9702 |
| | Left trunnion: | 100 PDR |
| | Right trunnion: | R.P.P. |
| | Right rimbase: | 825 |
| S-9 | Left trunnion: | 100 PDR |
| | Right trunnion: | R.P.P. |
| | Top of tube: | U.S. |
| S-10 | Muzzle: | No 46 *(possibly 146)* 1862 *(possibly 1863)* |
| | Left trunnion: | 100 PDR |
| | Right trunnion: | R.P.P. |
| S-11 | Muzzle: | No 46 *(tentative)* 1862 *(tentative)* A.M. *(Alfred Mordecai)* |
| | Left trunnion: | 100 PDR |
| S-12 | Top of breech: | R.P.P. No 84 9802 lbs |
| | Left trunnion: | P *(proof mark)* |
| | Right trunnion: | 1863 100 PDR |
| | Right rimbase: | 835 *(tentative)* |
| | Top of tube: | *(anchor)* |
| S-13 | | *piece badly corroded, no markings visible* |
| S-14 | Top of breech: | R.P.P. No 96 9722 lbs |
| | Left trunnion: | P |
| | Right trunnion: | 1863 100 PDR |
| | Top of tube: | *(anchor)* |
| S-15, 16, 17 | Left trunnion: | 100 PDR |
| | Right trunnion: | R.P.P. |

The **extreme range** of the 100-pounder Parrott was 8845 yards, or 5.0 miles. This impressive range was possible when using hollow shot fired at an elevation of 35 degrees with 10 pounds of No. 5 powder. Time in flight at this range was approximately 37 seconds. The range when using the standard No. 7 grain powder was about 400 yards less. While the established **service charge** was 10 pounds, greater ranges and velocities could certainly have been obtained with larger charges, but only with an accompanying increase in wear on the gun. By war's end, due to the distressing tendency of these Parrotts to burst, their service charges were wisely *decreased* to 8 pounds.

**Projectiles** for the 100-pounder Parrott came in a variety of shapes, sizes, and types. Solid bolts, for example, depending on their length and type of ogive/nose, ranged from 71 to 99.5 pounds. Likewise, shells came in several different sizes as well. The "long shell" was approximately 18.5 inches long, weighed 101 pounds, and contained a bursting charge of 4.5 pounds. In contrast, the "short shell" was 16 inches long, weighed 85 pounds, and contained a bursting charge of 3.5 pounds. Naturally, firing the heavier rounds placed a greater strain on the guns and as a result they were used sparingly. When ricochet fire was desired or when no other ammunition was available, round shot could be fired as well (this was true of most rifles). In such cases, the range obtained from firing a 32 pound shot with a 10 pound charge at 15 degrees of elevation was 3,416 yards, or 1.9 miles. The Army purchased a total of 25,825 bolts, 54,591 shells, 6,737 case shot, and 4,540 canister for the 100-pounder Parrott. Their average costs were $6.40, 7.30, 8.36, and 3.47 apiece. The **cost** of the gun was $1,200.

While in flight most rifled projectiles, due to their spiraling motion, would drift in the direction of the twist. Most rifles produced at the time, including Parrotts, featured a right-hand twist. This meant that at 25 degrees of elevation the 100-pounder's drift was typically 100 yards to the right, or roughly 1.5 percent of the actual range. At 35 degrees the drift was as great as 226 yards, or 2.7 percent of the total range. While such deviations were generally accounted for when sighting, they help to explain why Fort Sumter's eastern half was largely destroyed while the western half maintained more of its original proportions. Not surprisingly, Fort Pulaski's walls show similar signs of drift. In 1862 Pulaski's southeast corner was the aiming point for Federal gunners, and in this section a large breech was eventually formed. Influenced by drift, though, many rounds struck to the right of the breech, far more than those that struck to the left.

The eleven 100-pounders inside Fort Sumter's right face casemates were shipped from Georgia's Augusta Arsenal in December 1873 *(see Chapter Four)*. Unfortunately, since the Union Army rarely included serial numbers in their reports, there is no way to be certain of the Parrotts' wartime use. Two of the weapons were produced for the Navy, but in this case their record keeping, which tended to be better than the Army's, fails to help. Numbers 84 (S-12) and 96 (S-14) were shipped from the New York Navy Yard, but were next reported lost or abandoned. Number 84 was apparently returned to the Navy at Port Royal in July 1863, but number 96 was lost somewhere in the shuffle and eventually sent to the Augusta Arsenal. Considering their presence at Augusta in 1873, it is very possible that these eleven 100-pounders were in use during the war somewhere along the south Atlantic - perhaps even on Morris Island during the bombardment of Fort Sumter. Due to a lack of adequate records, though, their use during the Civil War may never be known.

# The Bursting of Parrott Rifles

Despite the remarkable accomplishments of the Parrott rifles, their disturbing tendency to burst, especially in the larger calibers, remains their greatest and saddest legacy. Perhaps even more unnerving, though, was their unequal endurance, some bursting early in their use while others lasted in excess of 3,000 rounds. No one knew quite what to expect. An understandable lack of confidence and mistrust soon developed in the larger Parrotts - especially with the crews who had to serve them.

If there was any regularity to their demise, it was the predictable way in which the guns burst. The 100-pounder Parrotts, for example, typically failed in front of their reinforcing jacket, usually throwing off one or two wedge-shaped chunks of the tube near the trunnions. The rest of the gun rarely became dismounted, and the carriage and crew were usually unharmed. In contrast, when the 8-inch Parrott burst, the back section of the breech was generally blown off. The jacket typically remained attached to the tube while the gun and carriage were thrown forward. Fractures, of course, were random and not entirely predictable, but some disturbing patterns were nevertheless apparent. Recognizing these areas of weakness, some improvements were finally made following the war. Later versions of the 100-pounder, for example, which were sold to the Spanish navy, had their reinforcing jacket lengthened and extended forward.

Structural flaws alone could not explain for the disturbing frequency of failures. The high inbore pressures common to all rifles stretched these guns literally to their breaking points. Problems with ammunition were a constant source of concern as well. Premature explosions inside the bore weakened the guns, causing them to burst violently or to develop unseen cracks which over time spelled trouble. Remarkably, some Parrotts endured more than a dozen inbore explosions before finally failing. Oftentimes these explosions were caused by inferior ammunition, defective fuzes, or the tight rifled twist which caused the base of some shells to sheer off and explode prematurely. Sand blown into the tube or otherwise adhering to the projectiles could also foul the bore, thus increasing the strain on the gun.

Inbore explosions clearly took their toll on the larger Parrotts. In the words of Parrott, "You cannot make a gun stout in proportion to its caliber. . . the bursting of a shell containing 17 pounds of powder in a gun is a different thing from bursting one containing only a few ounces." He was also convinced that the violent action of the powder against the walls of the shells was contributing to the frequency of the premature explosions. To overcome this he recommended that the interior walls of shells be coated with a waxy mixture, allowed to dry, and then loaded with powder. When these extra precautions were taken, better results were generally obtained. The exterior of projectiles were also greased prior to firing which helped to ease the round on the way out of the tube. These remedies tended to help, but they certainly did not solve the discouraging problem of bursting.

During the bombardments of Fort Sumter from Morris Island there were never more than 22 heavy guns mounted at any one time, yet a remarkable total of *50* Parrotts burst during the siege. Fortunately these accidents caused relatively few casualties, but the time, expense, and effort of replacing these guns were considerable. In the attack of Fort Fisher, though, the Federals were not so lucky. Five Parrotts burst during the first bombardment, killing or wounding 45 men - four times as many casualties as were inflicted by the Confederates in the battle.

Understandably, the reputation of the Parrott never recovered from the Fort Fisher disaster.

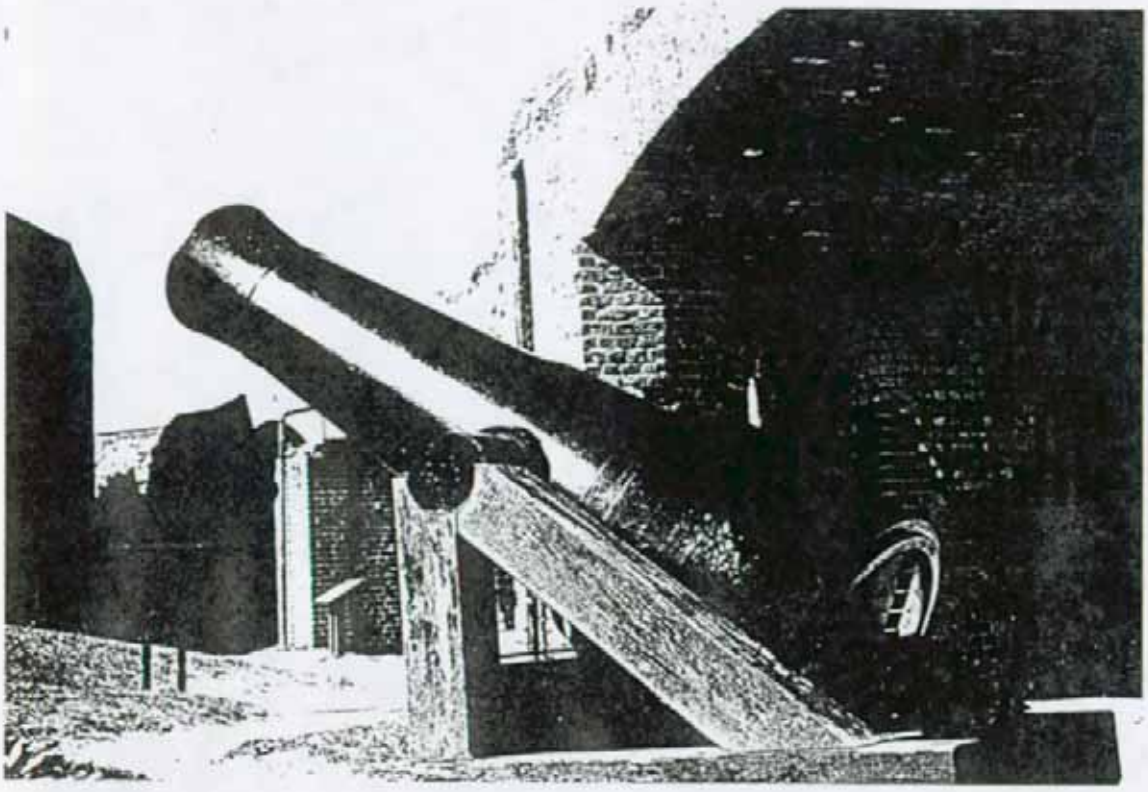
In fairness, the Parrott rifle was only intended to be a gun of moderate cost and strength. As Parrott told a Joint Senate Committee in 1865, he never claimed that the gun was perfect. Under the pressure of war, they were "the best practical thing that could be got at the time." In many ways he was right. After all, no gun could be expected to last forever. Tragically, though, this revolutionary new form of technology had its costs.

Army 100-pounder, No. 1, burst in front of band on steamer *Naugatuck*, May 15, 1862.
Army 100-pounder, No. 14, burst in front of band **on Morris Island**, May 19, 1864 (1100th round).
Army 100-pounder, No. 18, burst in front of band **on Morris Island**, Nov. 15, 1864 (454th round).
Army 100-pounder, No. 19, burst in front of band **on Morris Island** (128th round).
Army 100-pounder, No. 21, burst in front of band **on Morris Island** (1150th round).
Army 100-pounder, No. 23, burst in front of band **on Morris Island**, Sept. 4, 1864 (1480th rd).
Army 100-pounder, No. 51, burst in front of band **on Morris Island** (214th round).
Army 100-pounder, No. 52, burst at breech **on Morris Island** shelling Charleston (1590th round).
Army 100-pounder, No. 53, burst in front of band **on Morris Island** (152nd round).
Army 100-pounder, No. 66, burst in front of band **on Morris Island** (108th round).
Army 100-pounder, No. 67, burst through band **on Morris Island**, November 15, 1864.
Army 100-pounder, No. 95, burst at the muzzle **on Morris Island** (87th round).
Army 100-pounder, No. 97, burst in front of band **on Morris Island** (439th round).
Army 100-pounder, No. 99, burst in front of band **on Morris Island**, May 15, 1864 (6th round).
Army 100-pounder, No. 100, burst in front of band **on Morris Island**, June 6, 1864 (226th rd).
Army 100-pounder, No. 104, burst in front of band **on Morris Island** (216th round).
Army 100-pounder, No. 129, burst in front of band **on Morris Island** (514th round).
Army 100-pounder, No. 153, burst in front of band **on Morris Island** (138th round).
Army 100-pounder, No. 154, burst by blowing breech off **on Morris Island** (38th round).
Army 100-pounder, No. 155, burst in front of band **on Morris Island** (126th round).
Army 100-pounder, No. 156, burst in front of band **on Morris Island**, May 27, 1864 (13th round).
Army 100-pounder, No. 157, burst in front of band **on Morris Island** (219th round).
Army 100-pounder, No. 158, burst in front of band **on Morris Island** (256th round).
Army 100-pounder, No. 161, burst in front of band **on Morris Island** (377th round).
Army 100-pounder, No. 162, burst into several pieces **on Morris Island**, September 17, 1864.
Army 100-pounder, No. - , burst in front of band **on Morris Island**, July 15, 1864 (491st round).
Army 100-pounder, No. 186, blew off breech **on Morris Island**, Sept 13, 1864 (31st round).
Army 100-pounder, No. 187, burst through breech **on Morris Island**, Sept 12, 1864 (316th round).
Army 100-pounder, No. 189, burst in front of band **on Morris Island**, Nov 29, 1864 (196th round).
Army 100-pounder, No. 190, burst in front of band **on Morris Island**, Nov 28, 1864 (102nd round).
Navy 100-pounder, No. 2, burst at the muzzle on the steamer *Hunchback*, June 19, 1864.
Navy 100-pounder, No. 4, burst in front of band on the steamer *Westfield*, October 31, 1862.
Navy 100-pounder, No. 6, burst at the muzzle & chase **on the steamer *Mahaska***, 1863.
Navy 100-pounder, No. 11, burst at the muzzle on steamer *Commodore Barney*, April 10, 1862.
Navy 100-pounder, No. 18, cracked in rear of vent on the steamer *Genesee*, May, 1864.
Navy 100-pounder, No. 21, burst at muzzle **on the *Cimarron***, February 15, 1864.
Navy 100-pounder, No. 24, burst in front of band **on *Paul Jones***, July 18, 1863.
Navy 100-pounder, No. 25, burst at vent on *Sassacus*, January, 1865.

Navy 100-pounder, No. 29, burst by blowing off breech on the *Juniata*, December 25, 1864.
Navy 100-pounder, No. 34, burst at muzzle **on Morris Island** shelling Charleston, Nov 12, 1864.
Navy 100-pounder, No. 44, burst at breech on *Commodore Perry*, June 17, 1864.
Navy 100-pounder, No. 81, burst at band **on Morris Island** shelling Charleston (883rd round).
Navy 100-pounder, No. 128, burst in front of band **on Morris Island**, Nov 14, 1864 (914th round).
Navy 100-pounder, No. 135, cracked at the vent, Fort Jackson, June 14, 1865.
Navy 100-pounder, No. 141, burst at the breech on the *Mackinaw*, December 26, 1864.
Navy 100-pounder, No. 149, cracked near breech on the *Commodore Read*, November 14, 1864.
Navy 100-pounder, No. 151, cracked at the vent on the *Commodore Read*, November 14, 1864.
Navy 100-pounder, No. 162, burst at the muzzle on the *Ticonderoga*, November 14, 1864.
Navy 100-pounder, No. 166, burst by blowing off breech on the *Yantic*, December 24, 1864.
Navy 100-pounder, No. 194, cracked through the vent on the *Maumee*, June, 1865.
Navy 100-pounder, No. 213, cracked at the vent on the *Kansas*, December 24, 1864.
Navy 100-pounder, No. 233, burst in front of band on the *Osceola*, June 15, 1865.
Navy 100-pounder, No. 238, burst in front of band on the *Mendota*, July 24, 1864.
Navy 100-pounder, No. 262, burst at muzzle on *Tallapoosa*, April 5, 1865.
Navy 100-pounder, No. 288, burst on the *Mohican*, December, 1864.
Navy 100-pounder, No. 311, burst into 10 pieces on the *Ticonderoga*, December 24, 1864.
Navy 100-pounder, No. 325, cracked through the vent on the *Lenapee*, February, 1865.
Navy 100-pounder, No. 330, cracked through the vent on the *Lenapee*, February, 1865.
Army 8-inch, No. 3, burst at breech **on Morris Island**, October 1, 1864 (272nd round).
Army 8-inch, No. 4, burst in front of band **on Morris Island** (599th round).
Army 8-inch, No. 5, burst at breech **on Morris Island** (227th round).
Army 8-inch, No. 6, burst at breech **on Morris Island** (36th round).
Army 8-inch, No. 8, burst at breech **on Morris Island** (522nd round).
Army 8-inch, No. 20, burst at breech **on Morris Island**, July 23, 1864 (1457th round).
Army 8-inch, No. - , burst at breech **on Morris Island**, August 15, 1864 (1063rd round).
Army 8-inch, No. 24, cracked in front of breech **on Morris Island**, August 5, 1864 (269th round).
Army 8-inch, No. 25, burst by blowing off breech **on Morris Island** (230th round).
Army 8-inch, No. 36, burst by blowing off breech **on Morris Island** (226th round).
Navy 8-inch, No. - , burst in trials on Castle Island (420th round).
Navy 8-inch, No. 6, cracked at muzzle **on the monitor *Patapsco*.**
Navy 8-inch, No. 28, cracked in breech on the *Shenandoah*, February, 1864.
Navy 8-inch, No. 40, cracked in action **on the monitor *Patapsco*.**
Navy 8-inch, No. 46, cracked in bore on the monitor *Onondaga*.
Navy 8-inch, No. 59, cracked near muzzle on the *Pequot*, September 12, 1864.
Navy 8-inch, No. 60, cracked in front of band on the *Colorado*, December 25, 1864.
Navy 8-inch, No. 61, cracked in vent on the monitor *Onondaga*, April, 1865.
Navy 8-inch, No. 82, piece of muzzle blown off on the *Susquehanna*, June 15, 1865.
Army 10-inch, No. 1, burst at muzzle **on Morris Island** (27th round); unserviceable (371th round).
Army 30-pounder, No. 18, burst at muzzle, July 7,1864 (401st round).
Army 30-pounder, No. - , burst in breech **on Morris Island**, May 15, 1864 (2900th round).
Army 30-pounder, No. 193, burst in front of band **on Morris Island** (4606th round).

Sixty 100-pounders and twenty-two 8-inch Parrotts burst, or roughly 90 percent of the total number of Northern guns that burst in action.

# 10-inch Columbiad, Model 1844, rifled & banded S-18



**Common name:** 10-inch Columbiad, Model 1844, rifle & banded
**Identification:** Columbiad, 10-inch, smoothbore, seacoast, Model 1844, rifled & banded by the Confederates
**Place of manufacture:** Cyrus Alger & Co., Boston
**Material:** cast-iron; two concentric layers of wrought iron reinforcing bands
**Number produced:** 149 10-inch M1844 smoothbores **Known survivors:** 14

PRINCIPLE DIMENSIONS

**Length:** 126 inches **Weight:** originally 15,585 lbs; approx. 20,000 lbs after conversion
**Bore diameter:** 10 inches **Bore length:** 111 inches **Caliber of gun:** 11.1
**Rifling:** 15 x 15, straight, with right twist **Weight of gun to shot:** 95.2
**Type of chamber:** cylindrical - diameter 8 inches, length 12 inches
**Length of jackets:** 34 inches (inner band); 29.75 inches (outer)
**Thickness of bands:** 1.75 inches
**Trunnion diameter:** 10 inches **Trunnion length:** 9 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | 9 | *registry number* |
| **Left trunnion:** | 1846 | *year of manufacture* |
| **Right trunnion:** | C. A. & Co.<br>BOSTON | *Cyrus Alger & Co.*<br>*place of manufacture* |
| **Breech:** | 15585 | *weight in pounds* |
| **Rear, inner band:** | J.M.E. & BRO. | *J.M. Eason & Bros.* |
| **Top of tube:** | U.S. | *U.S. Army* |

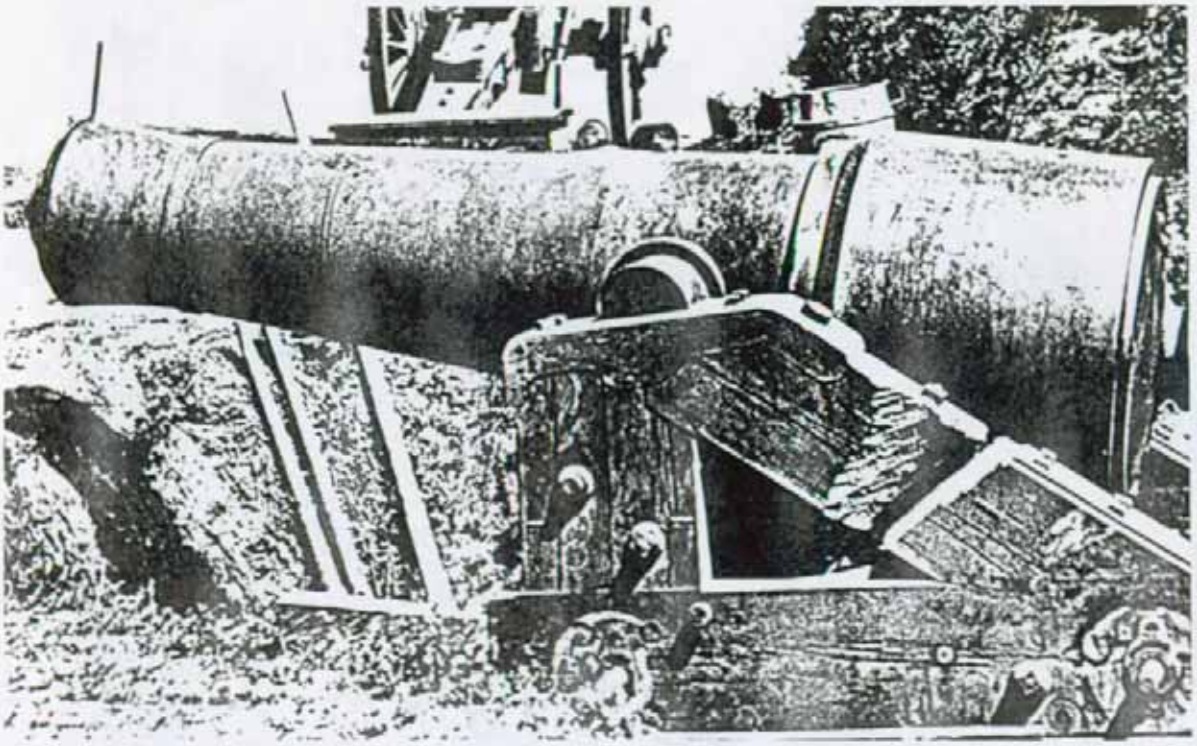
Cast as a smoothbore 1846, it was one of three such weapons brought to Fort Sumter by the Federal government in 1860. During the frantic efforts to mount the fort's armament in the weeks prior to the war, Major Anderson considered the possibility of hoisting these large guns to the terreplein where they could be put to greatest advantage. Deciding such a course unsafe, they were set up instead as mortars on the parade ground, one bearing on Fort Moultrie, one on Morris Island, and the other able to fire in either direction. In a trial to determine their range, a shell was fired with a two pound charge at an angle of approximately 35 degrees. The range was a respectable 2,000 yards - sufficient to reach the two nearby islands. Nevertheless, Anderson was apparently unimpressed; he ordered that they be moved to the terreplein as first planned. With ropes and muscles straining, the men managed to lift the first two to the top of the fort's walls, but on the third try the hoist broke and the gun crashed to the parade ground. Undeterred, Anderson had this gun set up once again as a mortar - pointing toward the city 3 ½ miles away. Since the gun was aimed at such a high angle, it was surrounded by a strong traverse in case the added strain caused the gun to burst. In reality Anderson probably never intended for the gun to be fired in this manner, the range to Charleston was simply too great. Perhaps he merely intended to impress the Southern diplomats still visiting the fort - a ruse to plant an added worry in the back of their minds in case they decided to open fire on his command.

Presumably all three of these 10-inch smoothbores were used at the fort during the unsuccessful Federal ironclad attack of April 1863. Later that summer the columbiad currently on display at the fort was removed, taken to the shops of James Eason & Bros in September, and there converted to a rifle. As part of the conversion, the breech was strengthened with heavy wrought iron bands.

In the South, reinforcing bands were formed by taking long bars of iron which were cut to length, heated, and then upset until they formed a ring slightly larger than the outer diameter of the gun. After the section of the gun to be banded was turned true, the heated bands were slipped over the breech. As the bands cooled, they contracted and clamped down onto the tube. Although the goal was to produce individual bars which measured a uniform six inches wide and two inches thick, there was a great deal of variability in the sizes used.

Since the Confederates were forced to use whatever bar stock that was available, surviving guns have bands which range in width from 5.5 to 7.1 inches, and generally 1.75 inches thick. After its conversion, the 10-inch rifle was next placed in the four-gun battery at Fort Johnson on James Island to help protect the inner harbor from naval attack. Being sealed-off from Federal fire on Morris Island, the gun had a fairly limited field of fire, and as a result, it was apparently never called upon to fire a hostile shot.

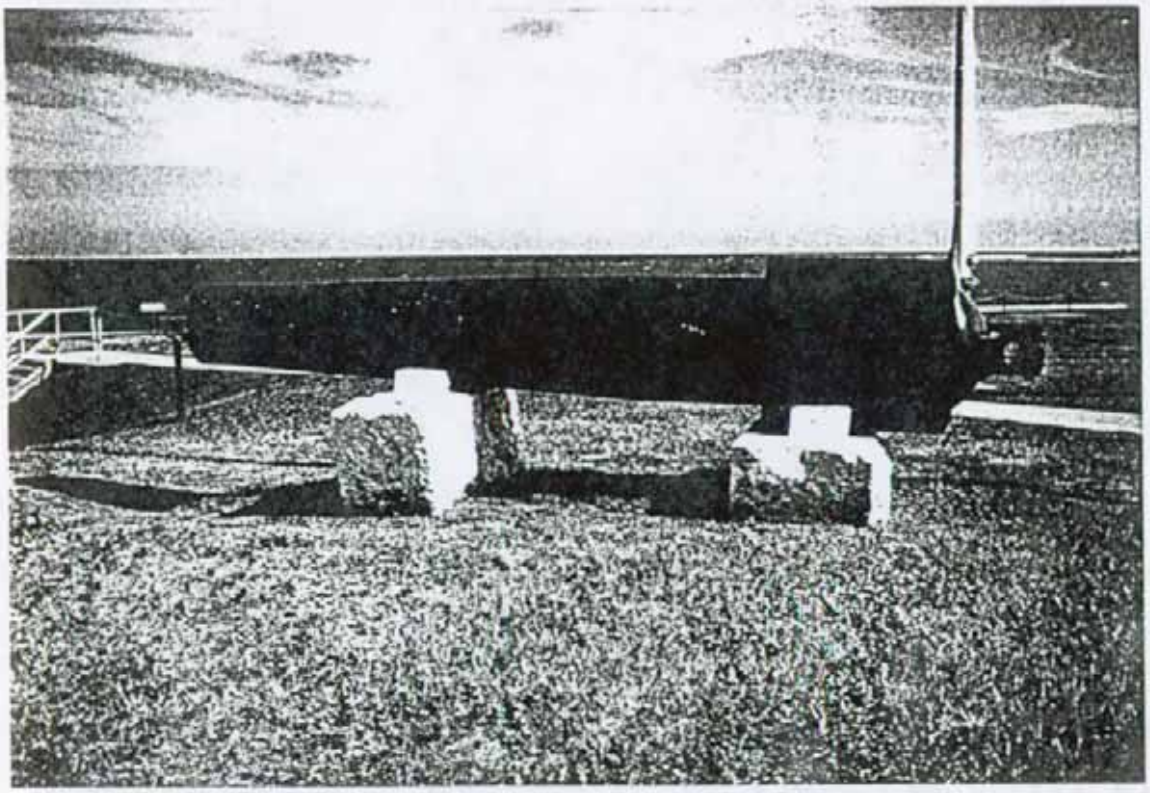
With the Federal occupation of the city in 1865, Fort Johnson and its battery of guns were allowed to gradually deteriorate. In October 1898, the 10-inch rifle was removed from the ruins of the fort and set up nearby as a monument by the new inhabitants of the fort, the Charleston Board of Health. It was there that it remained for the next fifty years. Finally in June 1954 it was donated to the National Park Service, placed on a barge and carried to Fort Sumter. Two National Park Service employees using a specially made rail car and 70 feet of track struggled to move the 20,000 pound gun inside the fort. Their goal, the left shoulder angle, was 350 feet away so the track had to be painstakingly pulled up and placed in front of the gun as they moved. After more than a week of pushing and pulling, the gun was finally in place. Next, a timber carriage which resembled the one inside Fort Sumter's parade ground in 1861 was constructed and the tube lowered into place. The gun would see a final move, to its current position on the other side of Battery Huger, during the fort's excavation in 1959.



**10-inch rifled columbiad, Fort Johnson, 1865.** Note the thick traverse used to protect the gun from Federal fire on Morris Island, the forward sight, and the method used by the Confederates to disable the carriage (National Archives).

**Fort Johnson's four-gun water battery, 1865.** Top to bottom: 8-inch howitzer, siege and garrison, Model 1841; 10-inch columbiad, Model 1844, rifled & banded; 7-inch double-banded Brooke rifle; 10-inch Confederate columbiad; 10-inch Confederate columbiad. The carriage to the left is a wagon used for transporting mortars (National Archives).

# 8-inch Parrott S-19



**Common name:** 8-inch Parrott
**Identification:** Parrott, 8-inch, rifle, seacoast, Model 1861
**Other names used:** 200-pounder Parrott (Army designation); 150-pounder Parrott (Navy designation - seldom used)
**Place of manufacture:** West Point Foundry, Cold Spring, New York
**Material:** cast iron tube; wrought iron reinforcing jacket
**Number produced:** 178 (91 for the Army, 87 for the Navy)
**Known survivors:** 8 (8 Army, 0 Navy)

PRINCIPLE DIMENSIONS

**Length:** 163.75 inches **Weight:** 16,537 pounds
**Bore diameter:** 8 inches **Bore length:** 135.25 inches **Caliber of gun:** 16.9
**Rifle:** 11 x 11, straight, with right gaining twist **Weight of gun to shot:** 110.2
**Length of jacket:** 34 inches **Thickness of jacket:** 4 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | No 58 | *registry number* |
| | 1864 | *year of manufacture* |
| | W.P.F. | *West Point Foundry* |
| | 8.IN | *caliber of bore* |
| | R.M.H. | *Richard M. Hill, inspector, 1861-76* |
| | 16537 | *weight in pounds* |
| **Left trunnion:** | P | *proof mark* |
| **Right trunnion:** | R.P.P. | *Robert Parker Parrott* |
| **Right rimbase:** | 876 | *foundry number* |
| **Top of tube:** | U.S. | *U.S. Army* |

Other than a difference in markings, the larger Parrott rifles produced for the Navy were identical to those made for the Army. Presumably all 8-inch Parrotts were cast using the Rodman process (an order for 50 such guns dated March 1, 1864, stipulated that they "be cast hollow and cooled from the interior"). The **cost** was $2,200 per gun, or $0.14 per pound. As early as March 24, 1862, an order was placed to cast a trial gun. Results of this first gun must have been favorable since an open order was quickly placed on April 19 for "all that you (the West Point Foundry) can make." The last two were credited on July 26, 1865.

Parrott did not claim to be the first to shrink a reinforcing band onto a gun - and indeed he was not the first. He did, however, patent a unique and effective process of attaching bands. With the tube rotating horizontally on rollers, a heated band was slipped over the breech. Traditionally the tube would be stationary and the band as it cooled would clamp down on the body of the gun. With Parrott's process, the same was true, but with the tube continuing to rotate the band tended to clamp onto the breech more uniformly. The home of the Parrott rifle, the West Point Foundry, also had machinery capable of bending a single homogeneous bar, up to six inches thick, into the shape and size necessary for making the bands. This feat was impossible in the South; a series of smaller individual bars approximately six inches wide and two inches thick had to used instead.

The larger Parrotts had no preponderance. One of the advantages of this arrangement was that an elevating screw was not necessary to fire the gun. For close adjustments or when the gun was being fired rapidly at the same elevation the screw was generally recommended. Otherwise the screw was detached, especially when firing at elevations greater than 20 degrees. Many of these screws broke during firing, a fact confirmed by contemporary photographs which show an absence of screws and the use of wooden blocks and quoins instead.

The 8-inch Parrott at Fort Sumter was first brought there in February 1872. Having been proofed late in the war, August 1864, it probably saw little or no action during the conflict. It was one of four such guns carried to the island during the Federal government's modernization of Fort Sumter. By May 1874 it was mounted atop the right face. With the construction of Battery Huger twenty-five years later, the Parrott had outlived its usefulness. It was dismounted and buried nearby, where it was discovered during the excavation of 1959.

# 12-pounder Mountain Howitzer, Model 1835 S-20

**Common name:** 12-pounder Mountain Howitzer, Model 1835
**Identification:** Mountain Howitzer, 12-pounder, smoothbore, Model 1835
**Other names used:** Mountain Howitzer, Model 1841
**Place of manufacture:** Cyrus Alger & Co., Boston
**Material:** bronze
**Number produced:** at least 462 **Known survivors:** 146

PRINCIPLE DIMENSIONS

**Length:** 37.25 inches **Weight:** 221 pounds
**Bore diameter:** 4.62 inches **Bore length:** 31 inches **Caliber of gun:** 6.7
**Weight of gun to shot:** 18.4
**Trunnion diameter:** 2.7 inches **Trunnion length:** 2.25 inches

MARKINGS

| | | |
|---|---|---|
| **Muzzle:** | No 254 | *registry number* |
| | C. A. Alger & Co. | *Cyrus Alger & Co.* |
| | 221 LBS | *weight in pounds* |
| | 1863 | *year of manufacture* |
| | T.J.R. | *Thomas J. Rodman, inspector, 1841-71* |

Thanks to its light weight and small size, the versatile mountain howitzer proved to be an ideal addition for the Confederate defenders of Fort Sumter during the final eighteen months of the war. Along with its lightweight carriage, the howitzer was designed to be light enough to be broken down and carried on the backs of mules. At Fort Sumter as many as five were issued to the Confederates to guard against amphibious attacks. During the day they were hidden within the fort's bombproofs, but at night they were rolled to the top of the walls and positioned to cover the surrounding waters. Having a standard 4.62-inch bore, the howitzer could fire a variety of projectiles including deadly canister rounds at short range.

At 5 degrees of elevation the mountain howitzer could fire a 9 pound shell at a **range** of 1,005 yards, or roughly 0.6 miles (the time in flight at this distance was approximately 3 seconds). The **service charge** was 0.5 pounds, while the average **cost** was $136 per gun, or $0.06 per pound.

A total of 326 mountain howitzers were manufactured at Cyrus Alger & Co. for the Federal Army from 1837-63. An unknown quantity was also produced for the Navy and other agencies such as state militia. The Ames Manufacturing Co. of Chicopee, Massachussetts contributed as well, manufacturing 112 for the Union Army from 1861-63.

The Confederates produced a limited number of mountain howitzers during the war. The South's leading producer of guns, the Tredegar Foundry, cast 21 such guns of which there are 3 known survivors. The Columbus (Georgia) Arsenal manufactured an unknown quantity; there is 1 known survivor.

The mountain howitzer on display at Fort Sumter was received from the Museum Clearing House in Springfield, Virginia in April 1972. Its wartime record is unknown, and considering that there are currently 146 known surviving mountain howitzers, it is possible, but statistically unlikely that today's piece was once a part of Fort Sumter's Civil War armament.

*(also see Chapter Three)*

# Chapter Three

## *What happened to them all?* Tracing Fort Sumter's Guns Since 1865

In the sweltering Charleston heat of August 1951, three men, armed only with hand shovels and wheelbarrows, set out on an ambitious journey. Their task was to begin a systematic excavation of Fort Sumter, to peal back layers of earth and debris which in some cases had lay undisturbed for nearly seventy-five years. As months turned into years, more money gradually became available, and along with this money came more workers, better equipment, and extended work seasons. Never certain of what they may ultimately find, they continued their efforts, encouraged by each year's progress. A much needed boost came from the National Park Service in late 1958 when funding through *Mission 66* made it possible to hire a well-equipped moving company. Conducted now on a much larger scale and at a noticeably faster pace, the excavation rapidly brought the ruins of the fort to light. By the spring of 1959, their task was nearing its end. Exposed and broken, the brickwork of a once imposing structure now seemed stark and somehow incomplete. Clearly the Union bombardments of the Civil War had been effective.[1]

But the humble condition of the fort was to be expected. What came as a pleasant surprise to many was the impressive content of Fort Sumter's final 19,000 cubic yards of ruble and earth fill: *sixteen iron muzzle-loading cannons* of the Civil War-era. True, armament returns written and filed by ordnance officers (who were themselves long since dead and buried) gave hope that a large number of heavy guns were still located somewhere on the island. But there was always some doubt. At various times, obsolete and useless old guns could easily have been removed and hauled off to a court house lawn or to a far off cemetery, possibly even a scrap heap. There was no way to be certain of their fate until the excavation was complete. To the relief of everyone involved, most of the guns that were thought or *hoped* to be at the fort were ultimately found. As work progressed, it soon became apparent that one of the largest and most impressive collections of Civil War ordnance was on hand. Perhaps the only disappointment came when several pieces assumed to be there could not be located. These pieces, like their companions found during the excavation, had appeared on ordnance returns from the late 1890's. Three or more of these pieces may still be there today, possibly buried in the undisturbed fill of the eastern-third of the fort, used as re-bar in the construction of Battery Huger, or discarded in the surrounding waters of the harbor. Fortunately these "missing" guns are not extraordinarily rare; examples

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[1]Bids to complete the major excavation work during the spring of 1959 were opened on November 14, 1958. The Chitwood House Moving Company of Columbia, South Carolina was the lowest bidder and began work in late December 1858. The availability of heavy equipment, including two bulldozers, a barge, and a dumptruck, was the key to their rapid progress. Horace Sheely, Jr., *Excavation Report: Fort Sumter National Monument, December 29, 1858 - May 13, 1959*, National Park Service report, Ft. Sumter Collection.

of them can be seen within the park's current collection. Furthermore, the disappointment of not finding these weapons was lessened considerably by the discovery of some unexpected pieces which have proven to be quite rare.

The following is an account of these sixteen guns. The dispositions of several other pieces of ordnance, relevant to this account, are included as well. Like most pieces of military hardware, when these guns had finally outlived their usefulness, they were shoved aside in a dark corner, buried, and forgotten for a generation or two. Naturally there was little need to maintain records on these obsolete relics; if they happened to be in the way of subsequent renovations to the fort, they were simply moved and buried in some out of the way place with little effort to document where and when they were moved. Remembering that Fort Sumter underwent many such changes following the Civil War, surviving ordnance returns and engineers' reports have been used to determine as best as possible the fate of these guns along the way. For the sake of clarity, those weapons abandoned at the fort by the Confederates in 1865 are covered first, followed by the more numerous Federal guns brought to the island in the 1870's.

## Guns Abandoned by the Confederates

February 18, 1865 brought control of Fort Sumter back into Federal hands at last. But as the Union captors entered the ruins of their hard-earned prize, there was little to remind them of how it had once appeared. Ordered rows of brick casemates and barracks buildings had been replaced instead by rows of gabions, irregular mounds or earth, and piles of ruble and debris. Noticeably absent were the heavy guns and mortars which during the Confederate occupation had numbered as many as eighty-eight pieces. The original design of the fort had called for even more heavy guns - 135 mounted on three tiers. But now the victors could count only five heavy guns mounted throughout the entire fort.[2]

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[2]There is some question concerning how many Conferate guns were actually mounted at the fort at the time of the Southern evacuation - were there five heavy guns or only four? Following an inspection of the fort in August 1865, Major Charles R. Suter, Chief Engineer of the Department of the South, reported that there were only four heavy guns mounted in casemates and none mounted elsewhere. Maj. Genl. Gillmore subsequently used this information in his supplementary report to the Board of Engineers for Fortifications. Plates which accompanied his report faithfully showed the four guns mentioned by Suter during his inspection. The Charleston Yearbook of 1883 (describing the fort in 1865) and an ordnance sergeant at the fort in August 1869 also reported four mounted guns. All other known accounts have described five mounted guns. These vary from John Johnson's well-written account, *The Defense of Charleston Harbor*, to the diary of a Union seaman, Frederick Cobb Russell, who visited the fort two days after its evacuation. For other examples see Capt. D.R. Heap to Gillmore, May 12, 1872; Thomas Campbell, monthly report, November 1873; and report of Lt. M.L. Poland, November 30, 1873, Charleston Engineer District, Record Group 77, Federal Records Center, East Point, Georgia. The distinction, of course, is not

# Fort Sumter's Armament Reduced: 1863

Why did Federal forces find so few guns at Fort Sumter in 1865?

Soon after the Union descent on Morris Island in July 1863, long-range rifled batteries were established for the purpose of silencing the guns of Fort Sumter; in short, land-base army guns would destroy the offensive capability of the Confederate stronghold in preparation for a second and more decisive naval attack. Inside the fort there was little to contest this long-range bombardment. A pair of 7-inch Brooke rifles and another pair of rifled and banded 32-pdrs performed admirably, harassing the Federals in their approach to Battery Wagner. The 32-pdrs were mounted *en barbette* along the gorge and had an effective range of approximately 2.7 miles using 7 1/4 pounds of powder at an elevation of 14 degrees. The Brooke rifles, fired at an elevation of 20 degrees and with a charge of 15 pounds, were observed to be effective at a range of 3.5 miles. The range of these prized Brookes made it impossible for any Union soldier on the island to feel entirely safe; one round was even seen to fall within "a half mile of the inlet" - an overall flight of more than four miles. But additional Brookes could not be spared. On July 14, the Brooke mounted on the southeast corner of the fort developed a crack along the breech and beneath the bands after five days of firing. The other Brooke, mounted at the salient angle, was required to fire in reverse to reach Morris Island. This practice was soon discontinued when a shell fired in this manner exploded prematurely over the southern wall of the fort killing one of the garrison. It was subsequently relocated to the southeast corner where it saw considerable use until being disabled on August 22.

Beauregard understood the seriousness of the Federal presence on Morris Island. As early as July 13, 1863, he ordered guns to be removed from Fort Sumter and placed in less exposed positions around the harbor. This difficult decision, which at the time seemed like a preliminary step for evacuating the fort, was influenced by an earlier meeting of senior Confederate officers in the area. During this meeting, the possibility of landing a large number of troops on Morris Island for a decisive night attack was considered. With the Federals rapidly consolidating their positions, the Confederates felt their best chance was to quickly pour troops onto the island at night, exploit the element of surprise, and drive the Federals entirely from the south end before daylight. This bold plan was abandoned, though, when it became apparent that the Confederates simply did not have the means to land a sufficient number of troops on the island in such a short period of time. As Beauregard grimly noted in his Report of Operations, the "impossibility of expelling the enemy from Morris Island being fully recognized, I was obliged reluctantly to adapt to the defensive." With this decision, Fort Sumter's role had suddenly changed; as never before, it now lay threatened and vulnerable.

On July 13, the removal of heavy guns from Fort Sumter began. On that day two 10-inch Columbiads were ordered to be removed from the fort and remounted at Fort Moultrie. So as to disguise the weakening of Sumter's armament, guns were to be lowered to the base of the wall and transported at night, while their positions throughout the fort were replaced by wooden logs fashioned to look like large cannon, commonly known as "quaker guns." By August 17, when the Federal shelling began in earnest, more than twenty guns and mortars (primarily those along the left flank) had been removed. With each passing day, Confederate defenses inside the harbor and along James Island were improving, thanks in large part to the addition of the guns removed from Fort Sumter. But inside Sumter, the situation was becoming desperate. One after another, guns along the top of the parapet were being knocked from their mounts. Fearing more would soon be damaged or destroyed, the Confederates stepped up their efforts to remove these valuable weapons. By the sixth day of the bombardment, the fort's remaining two serviceable guns, the XI-inch Dalghren recovered from the wreck of the *Keokuk* and a 10-inch Columbiad, fired a total of six rounds. These would be the last heavy rounds fired from the fort during the war. Within a week, by September 1, 1863, the fort could not reply with a single serviceable gun.

John Johnson's statement that the fort's entire armament was rendered unserviceable at this time is for all practical purposes true. It should be noted, though, that a final gun, a 32-pdr smoothbore mounted in the lower casemate of the left shoulder angle, could still be fired as of September 3. Over the upcoming weeks, this piece remained as the single serviceable gun in the fort and was used by the Confederates as a sunset gun, firing a defiant salute as the flag was lowered at the close of each day. By February 1864 this gun was replaced by a rifled & banded 42-pdr which, in addition to protecting that section of the fort, continued to serve as the fort's salute gun.

Fortunately for the Confederates many of the guns which were disabled during the shelling of August were not materially damaged. Carriages were broken and splintered, platforms undermined, and much of the terreplein eaten away, but many of the valuable guns could still be salvaged. Encumbered and sometimes completely buried under rubble and debris, their removal would be both difficult and hazardous. Men struggled to maintain their footing atop the crumbling ruins, shifting the cumbersome guns to the edge of the parapet where they could be dropped to a cushion of sand bags below at the water's edge. Next they were moved across the slippery, tide washed rocks and placed on floats which constantly rose and fell with the movement of the sea. Beginning with the night of August 27 and lasting nearly six months, this salvage operation supplied the Confederates with as many as twenty-five much-needed heavy guns and mortars.

For the remainder of the Confederate occupation, few changes would occur to Fort Sumter's armament. Largely converted into an earthen fortress, Southern defenders skillfully used shotguns, muskets, mountain howitzers, barbed wire, and vigilence to help keep Union forces at bay. During this period, there were only two efforts to reestablish heavy guns within the fort: a pair of three gun batteries were created, one located along the right face and another near the left shoulder angle. By war's end, only five of these guns remained. A total of only five mounted guns - truly a remarkable contrast to the fort's once powerful armament.

Entering the sally port created by the Confederates along the upper left flank, the Federals found one rifled and banded 42-pdr mounted in the first casemate to the north of the new entrance and a similar piece located one casemate beyond in the left shoulder angle. Prior to their arrival, the Federals were not quite certain as to how this section of the fort had been modified. Clearly their former adversaries had been busy. A new 50-foot wharf had been added along the left flank - the original sally port could not be used since it was exposed to the Federal batteries on Morris Island. Also, the embrasure in the second casemate below the angle was fashioned into a doorway, and a three gun battery created in the adjacent casemates. From this position, these guns could not only support the new sally port, but aid Fort Johnson and Battery Bee in the difficult task of covering the broad expanse of harbor just to the west of the fort. Completed on February 12, 1864, this new battery became known as the "west battery," a name which helped to distinguish it from the other three gun battery on the fort's right face, which, incidentally, became known thereafter as the "east battery."[3]

Continuing along an improvised wooden gallery built beneath the rubble of the left and right faces, a three gun battery was located at the eastern end of the right face. Created in October 1863 and powerfully armed, the battery was built in an effort to restore some of the fort's offensive firepower. Facing Sullivan's Island, these guns were well situated to guard the ship channel and the nearby floating obstructions. These three casemates, which were reasonably well-protected from reverse fire from Morris Island, were furthered

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critical. Since surviving information tends to suggest five mounted guns, that figure will be used.

[3]At full strength, the west battery's guns were arranged as follows:

1. rifled & banded 42-pdr mounted in the left shoulder angle
2. rifled & banded 42-pdr mounted in the casemate below angle
   (the new sally port occupied the second casemate below angle)
3. rifled & banded 8-inch columbiad in the third casemate below angle

None of these guns were reported to have fired a shot in anger. Even on January 20, 1865, when a Union infantry boat operating southwest of the fort drove a Confederate steamer aground near the new wharf, only musket fire was reported to come from this section of the fort. By war's end, the rifled & banded 8-inch had been removed and presumably taken to some location in the harbor where it could be put to greater use (it does not appear on any post-war ordnance return for Sumter). In time, the casemate converted into the new sally port was transformed for yet another purpose; a concrete mining casemate was added there in 1891. Major Suter's inspection report reprinted in John Johnson's, *The Defense of Charleston Harbor* (Charleston: Walker, Evans, & Cogswell, 1890), clxxii-clxxv; *ORA*, series I, vol. 47, 1012-13; Rock L. Comstock, Jr., *Fort Sumter, 1899*, National Park Service report, June 8, 1954, Ft. Sumter Collection.

strengthened in front by a prominent cribage of pine and palmetto logs. Earth was piled on top and behind the casemates as well, helping to make them secure in all directions. In terms of armament, a rifled & banded 42-pdr was mounted in the sixth casemate to the east of the salient angle. Beyond this, in the seventh and eighth casemates, were two Confederate-made 10-inch columbiads.[4]

In addition to these two batteries, reminders of the fort's earlier armament, including dismounted guns, broken carriages and shattered gun platforms, lay scattered about the island. Photographs taken shortly after the Federal occupation clearly show one of these dismounted guns, a Confederate-made 10-inch columbiad lying in the middle of the parade ground. Weeks later the piece was still there, lying near the newly-erected podium built for the April flag-raising ceremony. Strangely out of place, the 13,000 pound columbiad may have purposely been left near the podium, perhaps to impress onlookers, possibly because it was too heavy to move with the equipment on hand. Other photos show a similar piece *outside* the fort amid the ruins of the right flank. Lying at the base of the wall, this Confederate columbiad appears to be undamaged, but its placement there is somewhat of a mystery. Likewise, a third gun of Confederate origin, presumably a 7-inch single-banded Brooke rifle, is shown lying nearby amid the rubble of the lower right flank.[5]

Ordnance returns filed shortly after the war confirm the presence of as many as four 10-inch columbiads and four rifled & banded 42-pdrs at the fort, but the number and type of reported guns fluctuated from year to year. Other returns, for example, show as few as two columbiads and three rifled 42-pdrs; a number of other weapons also appeared on ordnance returns from time to time. Such discrepancies may be explained by the shipment of guns to and from the fort. Other guns may have been misplaced, buried, or otherwise relocated; clerical errors could also be to blaim. Furthermore, Federal occupying forces were notorious

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[4]Realizing that a rearmament was in progress, Federal gunners set out to destroy the new battery. Beginning October 26, 1863, the second major bombardment of Fort Sumter, one of the heaviest of the entire war, continued for forty-one days. By December over 18,000 rounds had been fired. Damage to the fort was extensive, but the Federals failed completely in their efforts to destroy the three gun battery. Each gun remained serviceable, and it was in this condition that they were found when the Federals occupied Fort Sumter fourteen months later.

[5]Why two heavy guns were lying outside the right flank is unclear. It is unlikely that they were placed there by the Federal captors, since such a move would serve no apparent purpose - the logical area to place heavy guns for shipment would have been along the gorge or left flank. It is also unlikely that the Confederates would have left these valuable weapons lying unmounted and unused for eighteen months, especially since they were so adept at salvaging heavy ordnance. A logical explanation is that the guns were disabled during the summer of 1863 and subsequently discarded there by the Confederates.

for misidentifying captured weapons. The 7-inch Brooke photographed along the right flank[6] never appeared on a post-war ordnance return, instead it may have been misidentified as a rifled & banded 42-pdr, which, incidentally, also had a seven-inch bore. Such mistakes were understandable, especially considering the general lack of information on Confederate weapons. In fairness, single-banded Brookes were not as commonly seen as the double-banded variety, and their appearance was appreciably different from the latter.

Ironically, the diminutive mountain howitzer played an important role in the defense and protection of Fort Sumter during the last eighteen months of the war. Small and lightweight, the bronze 12-pounder mountain howitzer, Model 1835, weighed only 220 pounds. Its carriage was equally versatile, being a smaller, simplified version of the heavier field carriage. Designed to be light enough to be broken down and transported on the backs of mules, the mountain howitzer nevertheless packed a considerable punch. With a standard 4.62-inch bore, these weapons were deadly at close range, especially when loaded with canister. At Fort Sumter, as many as five were issued to the Confederate defenders for protection against amphibious assaults. During the day they were hidden within the fort's bombproofs, but at night they were rolled to the top of the walls and positioned to cover the surrounding waters. Another was kept within a casemate near the left shoulder angle, set up to sweep the fort's interior should enemy troops manage to overrun the outer walls. Considering the fort's weakened and wrecked condition, these mobile mountain howitzers were an ideal addition, and unlike larger guns, they could be removed to safety whenever shelling dictated.

Four or perhaps five mountain howitzers were left at the fort upon its evacuation in 1865. Certainly the Confederates must have considered bringing them along, but throughout the night of the evacuation the Union batteries were firing heavily toward Sullivan's and James Islands; the subsequent need for haste and vigilance may have prevented their removal. According to John Johnson, "To the latest moments of the fort's resistance vigilance prevailed, causing the preparations for assault after nightfall to be made as usual.

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[6]The identification of the Brooke is conjectural, especially since no such gun appeared on any known post-war ordnance returns. The weapon in the photograph clearly has the gradual taper and general appearance of a single-banded Brooke (the rear of the piece, for example, is not rounded or bulbous like a columbiad). Furthermore, the pictured center gun-sight mass is unique to the Brooke. Also knowing that a such a weapon was disabled near this section of the fort, one could assume that the gun in the photograph is indeed a Brooke. There is one problem though: the gun *appears* to have a flat breech base similar to a columbiad, and not the typical naval cascable of the Brooke. This could merely be a distortion of the image caused by the camera's telescopic effect (a not uncommon occurrence for equipment of the day); in other words, *another* columbiad may be lying along side and behind the Brooke. Another possibility is that the gun is an undocumented Brooke variant or some form of banded columbiad, but such determinations are unlikely and would require the discovery of additional evidence.

The light brass howitzers, which were to be so serviceable and important in the event of another attack by barges, were run up the ramps and put in position on the crest of the work, long established by the artillerists."[7]

**Exterior view of Fort Sumter's right flank, 1865** (Library of Congress)

[7]Johnson, *Defense of Charleston Harbor*, 257.

While Johnson did not see this first-hand, photographs taken days after the evacuation confirm the presence of as many as four mountain howitzers at the fort, each appearing serviceable and ready for action. Their provenace is most likely Confederate since none were listed on any Federal ordnance return for any nearby battery or ordnance yard during the previous two years. As of December 31, 1865, they were dropped from Sumter's ordnance returns and apparently transfered to Castle Pinckney. As of December 31, 1866, they were moved yet again; their final disposition is unknown.[8]

The mountain howitzer currently mounted near Fort Sumter's right gorge angle was received from the Museum Clearing House in Springfield, Virginia on April 2, 1972. It's wartime record is unknown, and considering that there are currently 146 known surviving mountain howitzers, it is possible, but statistically unlikely that today's piece was once a part of Fort Sumter's Civil War armament.[9]

What eventually happened to the various Confederate guns left at Fort Sumter? The two 10-inch columbiads mounted within the casemates of the right face remained there until March 1874 when they were dismounted and replaced by 100-pounder Parrott rifles. As late as December 31, 1873, a total of four columbiads were listed as being on hand, but within ten years only two still remained. On June 6, 1899, the two remaining columbiads were donated to the city of Charleston and by the following year mounted at White Point Gardens.[10] Local author Warren Ripley in tracing their Civil War history stated that these were once part of Fort Sumter's well-known east battery, the construction of which prompted "one of the most vicious pinpoint bombardments in American history." What Ripley fails to consider, however, is that for several years there were as many as *four* unmounted 10-inch columbiads at the fort - any two of which could have ultimately found their way to the popular downtown park. Pending the discovery of additional information, the probability that the Charleston columbiads were once part of the important three-gun battery will remain

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[8]"Summary Statement of Ordnance and Ordnance Stores on Hand in the Forts and Batteries of the United States," U.S. Army, Ordnance Office, RG 156, National Archives.

[9]The Museum Clearing House has since moved to Harper's Ferry, West Virginia. "Transfer of Property," National Park Service document, March 29, 1972, Ft. Sumter files.

[10]Brig. Genl. A.R. Buffington, Army Chief of Ordnance, turned over to the mayor of Charleston the following "obsolete and condemned cannon" for use in public parks: at Porter Military Academy, one Brooke rifle (currently at Ft. Moultrie); at Castle Pinckney, three 10-inch columbiads and one Brooke rifle (presumably still buried in that fort's interior); at Fort Johnson, one 10-inch columbiad (possibly the one currently at Ft. Sumter); at Fort Sumter, two 10-inch columbiads (currently at the Battery) and one rifled 42-pdr. (disposition unknown); and at Sullivan's Island, one 10-inch rifle (currently at Ft. Moultrie). Minutes of the city council meeting, June 13, 1899, Ft. Sumter collection.

at 2 in 4.[11]

As for the rifled & banded 42-pdrs, the one mounted in Sumter's east battery was removed in March 1874 and replaced by a 100-pounder Parrott. Those located across the way in the west battery remained there until as late as 1883, but renovations completed in the 1870's would probably have required their earlier removal. Clearly the one below the shoulder angle was removed no later than 1891, since that casemate was filled with earth to offer the adjacent mining casemate additional protection. A fourth rifled & banded 42-pdr was on hand following the war but never mounted by the Federals.[12]

One of these rifled 42-pdrs is currently located at the fort along the left flank. Unfortunately, four such guns were once on hand and unmounted at the fort. Therefore, there is no way to be certain where this particular piece was once mounted.

Another 42-pdr was removed from the embankment and shallow waters surrounding the fort in 1912. Probably dumped there during the construction of Battery Isaac Huger, this piece lay forgotten until a storm uncovered it on August 28, 1911. Donated by the War Department to the Kingwood (West Virginia) Chapter of the GAR, the gun was shipped by rail and finally by six horse team to its new home. Since its arrival there in July 1912 it has graced the front lawn of the Preston County Courthouse. This 42-pdr, Pattern of 1845, was cast at Richmond's Tredegar Foundry in 1861. It is unique in that it is the only known Confederate-made 42-pdr which still survives, and probably the last of this type ever made. During the late 1850's, as many as 318 42-pdrs of this pattern were proofed and purchased by the War Department, but by 1861 all 42-pdrs were unceremoniously suppressed and theoretically replaced by the more advanced 8-inch Rodman. Nevertheless, many 42-pdrs would be pressed into service on both sides during the war, either as smoothbores or converted rifles. Understandably, Federal reliance on these guns diminished as better weapons became available, but the Confederates could not afford to be as unforgiving; the use of these guns in Southern coastal defenses throughout the war is well documented. Production of the 42-pdr, though, like in the North, was suppressed. Only two were apparently made during the war. The piece currently at Kingwood, West Virginia, cast May 27, 1861, was the second of the two. Shipped to Charleston at some time early in the war, it was eventually banded at the shops of Eason Bros., but *not rifled.* This particular 42-pdr,

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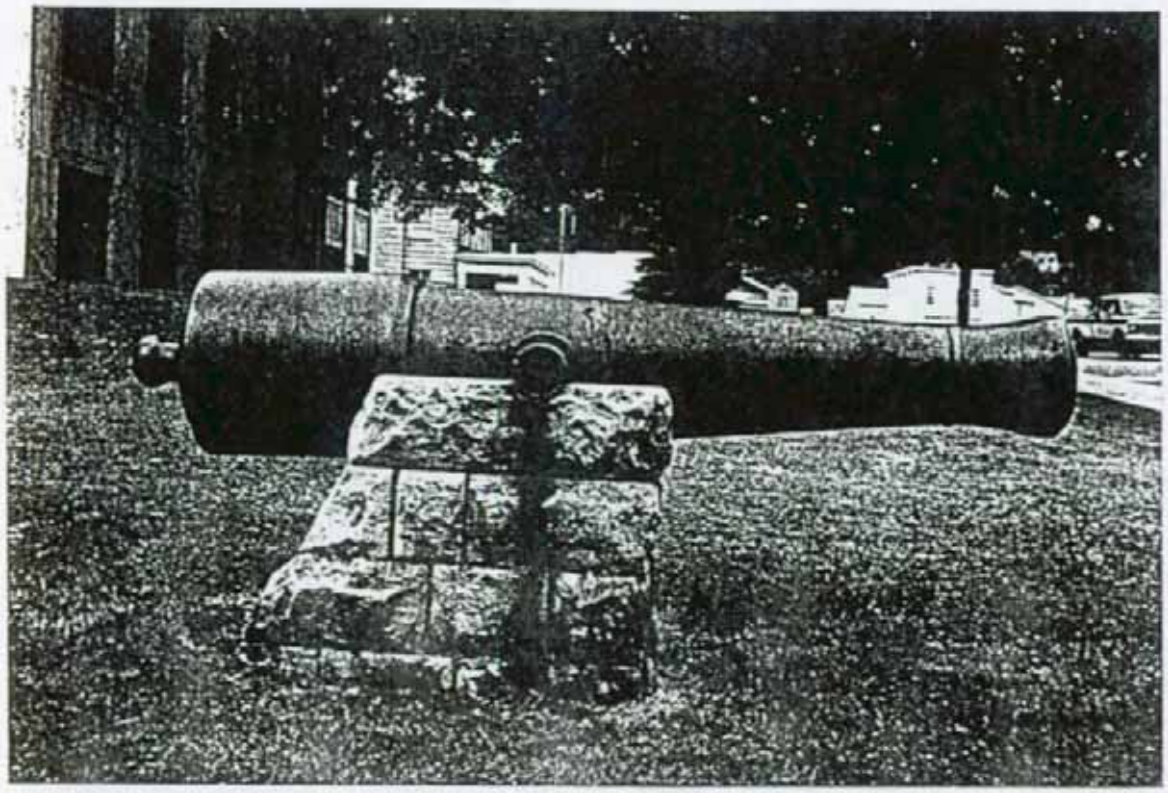
[11]Ripley is correct in saying that Federal ordnance returns of 1865 and 1900 list only two 10-inch columbiads at the fort. Unavailable to him, apparently, were the various post-war returns of the intervening years which listed two additional columbiads at the fort. It appears likely that these two additional guns were actually there in 1865 but not included on the armament list, perhaps because they were not mounted. Over a dozen returns for the years 1865-1900 are currently located within the records of the Chief of Ordnance, RG 156, National Archives. Warren Ripley, *The Battery: Charleston, South Carolina* (Charleston: Evening Post Publishing Co., 1977), 43-45.

[12]Summary Statement of Ordnance on Hand, RG 156, National Archives; Engineer's Monthly Inspection Reports, RG 77; Heap to Gillmore, May 12, 1872; report of M.L. Poland, November 30, 1873, Ft. Sumter Collection.

therefore, can be eliminated as being the one in Sumter's east battery - that weapon has clearly been established as a rifle, not a smoothbore. The Federal captors, seeing this as a banded gun, probably assumed that is was a rifle and recorded it as such on their post-war returns.[13]



**42-pdr Confederate Seacoast Gun, Model 1845.** Cast at the Tredegar Foundry in May 1861, foundry # 1217. Banded but not rifled - weight before banding was 8,445 pounds. This gun was reportedly recovered from Ft. Sumter in 1912 and is presently located in front of the Preston County Courthouse in Kingwood, West Virginia (photo courtesy of David E. Pierce).

Like the Kingwood piece, another 42-pdr was apparently dumped into the shallow waters surrounding Fort Sumter and subsequently uncovered by the storm of 1911. This

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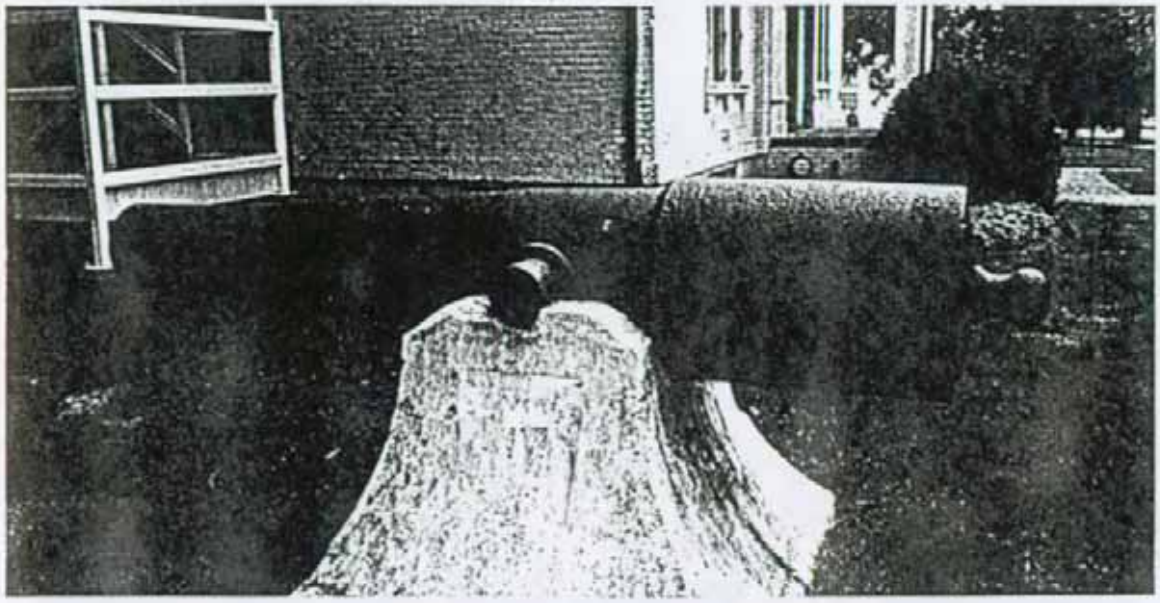
[13]The Bellona Foundry near Richmond may have produced two (or more) 42-pdrs during the war, but this cannot be confirmed since records for the company are practically non-existant. Of the twenty-nine known surviving 42-pdrs of the 1845 pattern, eighteen are rifled, but only two are banded smoothbores (the other such gun is at Ft. McNair in Washington, D.C.). *The Preston County News*, May 14, 1994; Tredegar Gun Foundry Book, Virginia State Library; *Ordnance Manual for The Use of Officers of the The United States Army*, 1861; *Ordnance Manual* (Confederate, 1863).

piece, cast at the West Point Foundry in 1856, was one of 114 such pieces proofed and shipped from that foundry from 1855 to 1859. It is presently located behind the UDC building in Richmond, Virginia. Banded and rifled by the Confederates, the rifling is the typical 7 x 7 hook-slant variety. Interestingly, though, the muzzle swell has been turned completely off. The purpose for this is unclear; certainly such a modification would be unnecesary for coastal defense use. It is possible that the Confederates had intended to use the rifle on board one of the ironclad gunboats in the harbor. Reducing the muzzle swell could, therefore, facilitate its use in the narrow port holes of the casemated ironclads. Why such a weapon would find its way to Fort Sumter is unclear.[14]



**42-pdr Seacoast Gun, Model 1845, rifled & banded by the Confederates.** Cast at West Point Foundry in 1856 (foundry # 56, registry # 50, and inspected by Benjamin Huger). Reportedly recovered from Fort Sumter in 1912 and mounted behind the UDC building in Richmond, Virginia (photo courtesy of David E. Pierce).

The disposition of a fourth rifled & banded 42-pdr is unknown. Considering the way

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[14]Although documentation on the armament of the Confederate ironclads in Charleston is largely incomplete, the *Palmetto State* was a good candidate for such a modified weapon. Comminisioned relatively early on (September 1862), it is unlikely that the *Palmetto State*'s ten 7-inch rifles were the prized Brookes - most if not all were probably rifled 42-pdrs. *The Preston County News*, May 14, 1994; Statements of Accounts for Contractors, RG 156, National Archives; Paul Silverstone, *Warships of the Civil War Navies* (Annapolis: Naval Institute Press, 1989), 205.

in which two other obsolete 42-pdrs were discarded, it is quite possible that this fourth and final gun lies submerged in the waters surrounding the fort, awaiting its turn to be discovered.

The following is a list of Confederate guns appearing on various ordnance returns for Fort Sumter following the Civil War:

| **Weapon** | **Disposition** |
|---|---|
| 10-inch columbiad | removed in 1900, currently at Battery Park |
| 10-inch columbiad | removed in 1900, currently at Battery Park |
| 10-inch columbiad | unknown - possibly at Magnolia Cemetery |
| 10-inch columbiad | unknown - possibly at Magnolia Cemetery |
| 42-pdr, rifled & banded | Ft. Sumter National Monument |
| 42-pdr, rifled & banded | removed in 1912, currently in Kingwood, WV (banded but not rifled) |
| 42-pdr, rifled & banded | removed after 1911, currently near UDC building, Richmond, VA |
| 42-pdr, rifled & banded | unknown (possibly a misidentified 7-in. Brooke rifle seen in 1865 photo) |
| 24-pdr, smoothbore | unknown, possibly buried at the fort |
| 24-pdr, smoothbore | unknown, possibly buried at the fort |

For those guns which have no known disposition, their fate could be as follows: removed for public display somewhere outside of Charleston; sold for scrap or otherwise destroyed; dumped into the surrounding waters of the harbor; used as backfill in the construction of Battery Huger; or buried beneath Fort Sumter's remaining earth fill.

Three other Confederate pieces - a damaged 8-inch columbiad, a 42-pdr smoothbore, and a 10-inch seacoast mortar - were unexpectantly found during the fort's excavation. None had appeared on post-war returns, but they were nevertheless found buried in the fill behind the left face in 1959. Since each was discovered on the level of the original parade ground, it is quite possible that they had been buried there at some point during the first major bombardment. Photographs taken after the bombardment show a mass of rubble and debris covering this section of the left face. Amid this destruction and confusion, guns could easily have been buried there and then forgotten. This, of course, would help to explain why the Confederates had not removed these weapons. Furthermore, if the Confederates had known about the damaged columbiad, it would have been senseless to try and remove it; the logical choice would have been to leave the gun buried at the fort amid the rubble.

Although there is no proof, there is an intriguing possibility that other Confederate guns may still be buried at the fort. Following the ironclad attack of April 1863, and then during the Federal descent upon Morris Island, the fort's defenders desperately tried to strengthen the casemates of the right flank and the rooms along the gorge. Their favorite material to use, which also happened to be the most convenient, was the sand dug up from their own parade ground. Twelve lower and thirteen upper casemates along the sea front were thus filled, bringing the level of the parade ground down by a depth of over four feet in some areas. Following the war, in the 1870's, large quantities of sand and earth (and possibly discarded Confederate ordnance) were used to re-fill the fort. Eighty years later much of this material was subsequently excavated, but only down to the approximate level

of the original parade ground. What lies buried beneath the first four feet of today's parade ground - if anything - remains a mystery.

## Federal Guns Brought to Fort Sumter After the Civil War

Following the war, a variety of plans were considered for repairing and rearming Fort Sumter. The most elaborate was proposed by Quincy Gillmore, a man well-versed in fortification design. Graduating at the top of his West Point class in 1849 and involved in the construction of several forts before the war, Gillmore had ushered in a new era "in the science of engineering and gunnery" with the reduction of Fort Pulaski in April 1862. His use of accurate, long-range rifled guns was subsequently used on Morris Island as he personally directed the bombardment and destruction of Fort Sumter in 1863. Placed in charge of the fort's clean-up following the war, he proposed that the fort be rebuilt and armed with twenty-eight 15-inch Rodmans mounted within granite casemates and one massive 20-inch Rodman mounted *en barbette*. Clearly, though, the War Department was not willing to invest so heavily in the development of expensive casemated forts, especially in light of their vulnerability to new forms of artillery.[15]

The situation at Fort Sumter was by no means unique; nationwide the two decades following the war proved to be a period of military retrenchment. Little money was spent on research and development, and even less was earmarked for the construction of defenses already shown to be obsolete. During these years of uncertainty, Congress remained indifferent to coastal defense policy, unwilling to authorize the building of a new system of forts until the potential of post-war artillery could be determined. As a result, efforts to rearm Fort Sumter following the war were necessarily modest.

Throughout the early 1870's, plans for the revitalization of Sumter continued to evolve even as construction was under way. Ultimately it was decided to mount ten heavy guns *en barbette* atop the remnants of the existing fort. Such a course would provide some basic protection for Charleston Harbor yet minimize the overall cost of construction. To help reduce these costs, basic building materials would be used such as earth, sod, concrete, and salvaged bricks. Wherever possible, portions of the old fort were to be incorporated. Likewise, when the emplacements were ready for their armament, a mixture of 15-inch Rodmans and 8-inch Parrott rifles were to be gathered from supplies lying unused in

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[15]Gillmore's plan was submitted August 1, 1868; estimated cost was $546,749. No action had occured by 1870 when the Board of Engineers for Fortifications recommended a plan similar to Gillmore's. Due to the limited amount of space available on the island (and unwilling to have it enlarged), the board suggested that another casemated fort be built. Realizing that funds for such a structure were once again not available, they suggested instead that a temporary battery of thirteen heavy barbette guns be completed (nine 15-inch Rodmans and four corresponding rifles). Gillmore to Brig. Genl. A.A. Humphries, Comdg., Corps of Engineers, August 1, 1868; Board of Engineers for Fortifications to Humphries, January 3, 1870, RG 77, National Archives.

Northern forts and ordnance depots. In short, the rearmament of Fort Sumter was a compromise - it was a temporary expedient to get a few heavy guns mounted inexpensively and in a short period of time. Reluctantly, military planners were being forced to rely upon such temporary works, at least until Congress could be convinced that the time was right to invest in a new and costly system of fortifications.[16]

In February 1872 the fort's first installment of new guns, four 8-inch Parrotts, finally arrived. Remarkably, the delivery of these guns represented the first effort to rearm the fort since its capture seven years earlier. The commander of the Corps of Engineers, Genl. A.A. Humphries, was understandably concerned with the general unpreparedness of the Charleston defenses. Growing impatient with the lack of progress at the fort, he instructed Gillmore to put Sumter "in a condition of defense as quickly as possible." Wooden gun platforms and revetments of a temporary nature would be used so that the work could be completed as quickly as possible. In May two 15-inch Rodmans arrived. On July 12, two 13-inch mortars and four hundred shell were invoiced to Sumter from Fort Monroe; two additional mortars and four corresponding beds would soon follow.[17]

Meanwhile, Gillmore was considering the possibility of enlarging the fort's proposed ten-gun armament. He ordered the surviving casemates of the left flank, left face, and right face cleared of rubble "to ascertain their condition with an eye to arming them." The forthcoming work was anything but encouraging for Gillmore. "The middle casemates of the left face were uncovered, and the four casemate piers that were exposed were found to be in bad shape." The nine casemates along the right face were uncovered next. Unfortunately, only three were found to be in "fairly good shape." The arches and piers of five of them would have to be rebuilt to make the casemates once again serviceable. In light of the time and cost of making these repairs, plans to rearm the fort's casemates were

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trademark of these defenses was the noticeable trend toward using earth in construction rather than exposed masonry, as well as an increasing dependance on fewer but more powerful guns. For Fort Sumter the decision was made in November 1871 to use King's counter-force or depression carriages, a far less-sophisticated version of the type used during the later Endicott period. To accomodate this, the fort's arrangement for thirteen temporary guns was reduced to ten. Although it is unclear why, the War Department never adopted the King's carriage (in all probability they were too costly for post-war budgets). Work on the ten-gun arrangement continued, though, with traditional platforms being used in the place of the planned depression carriages. Gillmore to Humphries, November 14, 1871, RG 77, National Archives.

[17]Due to the crowded conditions at the fort during its renovation in early 1872, only six of the intended ten heavy guns were initially requested. After additional platforms were ready and the overcrowding problem alleviated, the remaining four guns were to be requested. Humphries to Gillmore, Jan 15, 1872; Capt. William Ludlow to Gillmore, March 4 & June 18, 1872; telegram, July 12, 1872, *Ibid.*

temporarily put on hold.[18]

Preparations for mounting ten heavy barbette guns continued throughout 1872. These guns were to be placed as follows: two on the left flank near the gorge angle (nos. 1 & 2), one just south of the left shoulder angle on the left flank (no. 3), two in the middle of the left face (nos. 4 & 5), two in the middle of the right face (nos. 6 & 7), one just south of the shoulder angle on the right flank (no. 8), and two on the right flank near the gorge angle (nos. 9 & 10). During this time rubble was cleared from the southeastern section of the fort. It quickly became clear, though, that other than a few broken piers, the entire right flank had been destroyed during the war. By June these piers had been removed and a new thirteen-foot high retaining wall built of concrete and faced with brick was constructed. Sloping mounds of earth and sod were then added, which extended upward to the gun mounts fifteen feet above and eighteen feet behind the new retaining wall. Although these earth mounds were heavily damaged in later storms, their use reflected the reluctance to use exposed masonry walls in the more vulnerable areas of the fort.[19]

**Fort Sumter's right flank and gorge, 1891** (Fort Sumter collection)

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[18]End of year report, June 30, 1872, *Ibid.*

[19]John Babington, *Fort Sumter: 1876*, National Park Service report, March 1, 1954, Ft. Sumter collection.

By June 1872 the first platforms were completed. The intense heat of July and August prompted a temporary halt in construction, but when work resumed the wooden platforms for positions 9 & 10 were completed and two 8-inch Parrotts mounted there on iron carriages. Meanwhile two 15-inch Rodmans were mounted at positions 4 & 5, and by May 1874, a pair of 8-inch Parrotts were added at positions 6 & 7 on 15-inch Rodman platforms modified for use by the smaller Parrotts. Preparations for the remaining four barbette mounts continued until 1876, but these guns were never delivered, and apparently never requested.[20]

When funding for the renovation of Fort Sumter suddenly came to an end in 1876, work on the barbette platforms was incomplete. The ultimate goal was to have ten 15-inch Rodmans mounted on permanent platforms, but by the close of operations, only the following had been completed:

| | |
|---|---|
| position 1 | permanent center-post pintle platform |
| position 2 & 3 | permanent front-post pintle platforms |
| position 4, 5, 6, 7, & 8 | *wooden* front-post pintle platforms |
| position 9 & 10 | *wooden*front-post pintle platforms for small calibers |

Positions 1, 2, 3, & 8 were empty. Only positions 4 & 5 along the left face featured 15-inch Rodmans; the remaining four guns were 8-inch Parrotts. Each of the six were mounted on wrought-iron carriages. Unfortunately post-war ordance returns do not include the foundry or registry numbers of any of these guns. Unlike their naval counterparts, the Army typically did not include such methods of identification in their reports, listing weapons only by their type, i.e. "two 15-inch Rodmans" or "four 8-inch Parrotts."[21]

Despite earlier setbacks, Gillmore never gave up on the possibility of arming Fort Sumter's surviving casemates, especially those along the right face. Reluctant at first, Humphries was eventually persuaded by Gillmore to authorize the repair of the nine right face casemates. Fortunately, the casemate in the salient and the adjacent one along the upper left face were still in good order. These eleven casemates were soon repaired and made ready for new traverse rails by December 2, 1873. Three days later Gillmore requested eleven guns to arm the casemates. He stipulated that they could be "100 or 200 pdr. Parrott Rifles, or VIII or X inch smooth bores, least desirable being the VIII inch." Within a week eleven 100-pounder Parrotts were ordered to the fort from Georgia's Augusta Arsenal. By

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[20]These platforms were made of creosoted yellow pine and white oak. As early as 1883 they were beginning to show signs of severe rotting. Ludlow to Gillmore, March 4 & June 18, 1872; plan of Sumter, March 1874, Lt. Thomas V. Bailey to Gillmore, May 28, 1883, RG 77, National Archives.

[21]The platforms at positions 1 & 2 were the only ones remaining by the time of the 1950's excavations. The platform at position 3 had been removed in 1891 during the construction of the mining casemate. Its granite front-post pintle block is presently located outside of the left flank near the fort's current entrance. Positions 4 through 8 were all removed during the construction of Battery Huger. Positions 9 & 10 were destroyed during the hurricane of August 1893.

December 26 they had arrived and were placed in the right face casemates where they awaited their carriages. These were shipped from the New York Arsenal, and by March 1874 the guns were mounted.[22]

Mortars were also used as part of Sumter's post-war armament. While in command on Morris Island during the war, Gillmore had been an outspoken proponent of mortars, thankful that the Confederates had failed to use them to greater advantage against his entrenchments. Nevertheless, when developing his 1868 plan for the reconstruction of Sumter, he did not recommend their use at the fort. He felt that Sullivan's Island could offer better cover for mortars and at a lower cost than at Sumter. Likewise, mortar defense for the inner harbor could effectively be provided by similar emplacements on Shute's Folly and James Islands. Gillmore's plan, though, was rejected and by the summer of 1872, four 13-inch seacoast mortars had arrived for evenutal use along Fort Sumter's gorge wall. During the next two years this section of the fort was rebuilt much like the adjacent right flank. A thirteen-foot high retaining wall was added and a parapet of earth and sod constructed above and behind the new wall. This section was completed and the mortars mounted there by June 1874.[23]

While mortars would have been effective at shelling the northern end of Morris Island, they would not have been effective at close range against small boats operating in the shallow waters behind the fort. To make matters worse, there was only one gun capable of firing in that direction, the 15-inch Rodman in position 1 (which, incidently, was never mounted). To correct this weakness, Gillmore recommended that the gorge be modified for the addition of four field pieces or gatling guns. Without hesitation Humphries approved the nominal cost to add these emplacements, but it is unlikely that these guns were ever brought to the fort.[24]

Storms were a constant threat to the upkeep and readiness of Fort Sumter. On

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[22]The eight casemates of the left flank were ready for armament, but never received traverse rails or guns. End of year report, June 30, 1873; Gillmore to Humphries, December 2 & 5, 1873; Major S.V. Benet to Humphries, December 9; Gillmore to Chief of Ordnance, December 10; unreadable to Gillmore, December 13; Sherman Gould to Capt. David E. Heap, December 26; report of operations, December; Capt. R.M. Hill, Augusta Arsenal, to Heap, January 2, 1874; plan of Ft. Sumter, March 1874, Ibid.

[23]The mortars arrived during the summer of 1872. Early in 1874 Gillmore recommended that they be transfered to Fort Johnson, but no record has been found to suggest that such a shipment ever occured. In June 1883 the mortars were listed as being at Sumter but were unmounted; one was lying on the parade ground and the other three in casemates. Gillmore to Humphries, August 1, 1868; yearly report, June 1874 & 1875; Cuyler to Gillmore, July 13, 1874, Lt. Thomas V. Bailey to Gillmore, June 6, 1883, Ordnance Sgt. to Abbot, July 15, 1886, Ibid.

[24]There is no record of these guns ever being at the fort. Gillmore to Humphries, November 4, 1874; Lt. Thomas L. Casey to Gillmore, November 7, 1874, Ibid.

September 28, 1874, a storm drove water through the embrasures of the right face and over the top of the right flank, filling the parade ground with six to eight feet of water. Portions of the right flank parapet were washed away and the armament of the right face casemates emersed in salt water. Eleven years later, on August 25, 1885, another storm caused similar damage, especially to the parapet along the left flank. Winds reached speeds of 125 miles per hour, killing twenty one people in the city and destroying or damaging 90 percent of the homes in the area. Meanwhile the gradual decay caused by daily exposure to salt air and water was taking its toll on the fort. By 1884 none of the barbette guns were serviceable. In addition to rust, the guns could not traverse "because of settlement and rotting"of the platforms. The condition of the 100-pdrs in the casemates was even worse. The casemate arches constantly leaked water onto the guns while the shutters, which by this time were no longer in working order, allowed salt water to dash unchecked through the embrasures. According to an 1887 report, these casemate guns were nearly ruined. "They are elevated, and the bores are rusted deeply, the elevating screws so rusted that they are of no use to depress the guns, and the trunnions are so rusted that the guns can not be elevated or depressed with handspikes . . . The traverse wheels are rusted fast, and the chassis and wheels which run on same are so rusted that the guns can not be run in or out of battery."[25]

On the night of August 27, 1893, Fort Sumter was hit with yet another powerful storm. Shortly after midnight, winds reached a speed of 126 miles per hour. In the city four people were killed, but farther south, from James Island to Hilton Head, approximately 2,000 blacks, many of them involved in phosphate mining, were drowned. Water in the fort and in the city reached levels in excess of eleven feet above high tide, the highest recorded levels in Charleston's history. Damage to the fort was extensive. Seas destroyed the wharf and crashed over the right flank, washing away some 70,000 cubic yards of earth and sand fill. The Parrott rifles mounted in positions 9 & 10 were entirely undermined, causing them to fall forward, turning a complete somersault in the process, so that they lay upside down with their chassis wheels in the air, and the guns themselves out of sight buried in the sand. The shutters along the right face were also washed away and the casemates filled with sand to a depth of one foot. To one observer, the fort had become "a disgrace to the country. It is the most prominent object to be seen by foreign vessels entering the port and . . . it proclaims at once the utterly defenseless condition of the port." Lying in ruins, the fort's deterioration was now practically complete.[26]

As late as 1896, plans for repairing the fort were still being considered. Clearly, though, Fort Sumter was preparing to move into an entirely new era of modernization. Construction of Battery Isaac Huger, a concrete gun battery designed for two steel, 12-inch breech-loading rifles, was begun on May 3, 1898 and completed by June of the following

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[25]Gillmore to Humphries, October 8, 1874; Abbot to Gillmore, November 29, 1887, Ibid; Walter J. Fraser, Jr., *Charleston! Charleston!: The History of a Southern City* (Columbia: University of South Carolina Press, 1989), 314-15.

[26]*Ibid.*, 326-27; Abott to Brig. Genl. Thomas L. Casey, September 9, 1893, RG 77, Federal Records Center, Georgia.

year. The old iron muzzle-loaders, though, would have one final hurrah. In April 1898, with the nation suddenly at war with Spain, preparations were made to put the fort in some state of readiness. Sumter's four remaining barbette guns were refurbished and their platforms apparently rebuilt. Overlooking a field of ninety-five mines, these guns stood ready to protect Charleston from Cervera's fleet of modern warships and modern guns. Fortunately, they were never needed.[27]

Remarkably, of the six barbette and eleven casemate guns brought to the fort during the 1870's, all but three are currently on display at the fort. Unlike hundreds of similar guns which were broken up at other forts and used as scrap metal in the years following the war, these fourteen survived. Why so lucky? Well their survival can be attributed to luck, indifference, and to the fact that it was far easier to simply bury them on site rather than remove them from the fort. For today's artillery enthusiasts, the thought of burying guns may seem a bit unorthodox - if not wasteful. But in the decades following the war such decisions were not unusual. Nationwide military leaders were constantly faced with the dilema of moving large and cumbersome guns, some weighing in excess of twenty-five tons. Burying them or perhaps using them as fill in times of newer construction was frequently the easiest and most practical way of disposing of them. In fairness it must be remembered that by the turn of the century these iron muzzle-loaders had clearly outlived their usefulness; their technology was completely outclassed by modern steel guns which could easily shoot twice as far and hit twice as hard. Other than adorning parks or courthouse lawns, it was unlikely that any would ever be called upon again. For a new generation of military men, these guns were simply in the way, and like any nuisance, they had to be removed. But this was easier said than done. Even today when there is a call to move one of these relics, a large and typically expensive crane is needed. There is little wonder, then, why so many of Sumter's guns were simply buried at the fort.[28]

As for the eleven Parrotts in the right face casemates, the hurricane of 1893 helped to seal their fate. Already rusted beyond repair and rapidly approaching obsolescence, the future of these guns was suddenly in doubt. Their low-lying embrasures were another source of concern since the fort was occasionally flooded by water entering through these openings

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[27]Plans for adding a modern concrete battery at Sumter were submitted as early as September 1895. Realizing this and concerned that Sumter's 15-inch Rodmans would soon be in the way of new construction, Abbott recommended that they be removed and mounted at Fort Moultrie. The 100-pounder Parrotts, he suggested, should also be removed and replaced by 8-inch rifles or 10-inch Rodmans for protection of the minefield. The smoothbores would be particularly effective in this role firing grape and cannister at any small boat parties attempting to remove mines. Abbot to Brig. Genl. W.P. Craighill, Chief of Engineers, October 7 & November 14, 1896, Ibid.

[28]A wealth of Civil War-era ordnance is probably buried within or nearby Endicott batteries throughout the country. Excavations at Fort Zachary Taylor in Key West, for example, have uncovered dozens of guns, carriages, and projectiles buried within or directly in front of Battery Osceola, a concrete battery built on the interior of Fort Taylor in 1898.

during heavy storms. To correct this, by the end of 1898 the embrasures were permanently sealed. Almost as an afterthought, the seven casemates nearest Battery Huger and the two tunnels leading to the right face were filled with sand to provide the new battery with additional protection. Unceremoniously entombed, these eleven guns would lay hidden and nearly forgotten for sixty years.[29]

On March 11, 1959, with fingers and toes crossed, workmen prepared to break through the retaining wall behind the centermost gun room. Several feet of earth had already been removed from atop of and behind the casemates, but what lay inside was still a mystery. Cautiously optimistic, they broke open the wall. At first there was a moment of surprise. Unexpectantly the casemate was filled with sand. Still hoping to find one of the much-anticipated Parrotts, the workers began to dig toward the center of the room. There was still no gun to be found. What was supposed to be the highpoint of the fort's excavation had suddenly become a major disappointment. Dejected, the workers returned to excavating the western half of the fort.

Two days later, after a bulldozer had cleared some additional sand from behind the right face guns rooms, a second retaining wall was opened. Inside was a 100-pounder Parrott mounted atop its wrought-iron, Model 1859 carriage. The following day the three easternmost casemates were entered, and they too contained guns. Being so far from Battery Huger, they had not been filled with sand and the guns inside were in surpisingly good condition. Afterward the sand in the room first entered on March 11th was entirely cleared of sand. It was only then that they discovered their mistake. A gun was not found in the room earlier because it was positioned at the extreme left of its traverse, situated almost directly under the arch dividing the two casemates.[30]

While two of the fort's 13-inch mortars still survive, the fate of the other two remains a mystery. All four were dismounted by 1883, at which time three were reported to be lying within the fort's casemates and the other on the parade ground. A photograph taken during the 1930's shows such a piece in the casemate to the south of the current sallyport, lying on its side atop a sand-covered floor. Another photo taken at a slightly later date (c.1935) shows two 13-inch mortars mounted on beds on the concrete pad outside the left flank on either side of the sallyport and pointed toward the city. They remained there until August 1969 when one was donated to the Petersburg National Battlefield and the other shipped to Fort Moultrie. Today the former serves as the famous "Dictator" at the Petersburg park while the

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[29]Retaining walls were constructed behind these casemates in 1873 to help protect them from reverse fire from Morris Island. The eastern extreme of the right face was sealed at approximately the same time. With the later construction of Battery Huger - which included the addition of a 20,600-gallon cistern near the salient, the filling of the two 1870's tunnels leading to the right face, and the addition of the protective earth cover surrounding the battery - the eleven casemates along the right face had become completely sealed.

[30]Sheely, *Excavation Report: Fort Sumter National Monument, December 29, 1958 - May 13, 1959*, 8-10.

later anchors Fort Moultrie's cannon row.[31] Although post-war plans called for an armament of ten 15-inch Rodmans, only two were ever brought to the fort. Both have survived and are currently on display at the fort. One was apparently uncovered by soldiers stationed there during World War II and eventually mounted on granite blocks atop the fill of the left face. Another was found during the 1959 excavation, buried nearby and just a few feet below the surface of the fill. As digging progressed in this area, several small stumps, which were all that remained of the rear support piers, began to appear. Likewise, approximately three hundred artillery projectiles were found in the same area. About midway along the left face, at the original parade level and approximately five feet behind the line of the rear piers, three Confederate weapons were unexpectantly found: a 42-pdr smoothbore, a damaged 8-inch columbiad, and a 10-inch seacoast mortar.[32]

Of the four 8-inch Parrott rifles that had been mounted at the fort as late as 1898, one was unearthed from atop the right face casemates, but three others could not be located. A hint to their disposition is found in a letter from J.C. Sanford, the captain in charge of repairs at the fort, to the army's Chief of Engineers. In the letter Sanford recommends that the two 15-inch guns and one of the 8-inch Parrotts be buried with their carriages in the deep hole in front of Battery Huger. The hole referred to was located in the middle of the eastern half of the fort, between the 1870's priciple magazine and the southernmost of the two service magazines. Today this area lies just to the east of the flagpole used for the South Carolina state flag. This unusually low point, created primarily by storms and erosion, was barely five feet above the level of high tide. As such it would have been a convenient dumping area for unwanted ordnance material and rubble. According to Sanford, by April 1902 the "old 15-inch guns and 200-pdr. Parrotts were disposed of, the former by being buried in the parade and the latter with the carriages of the former moved to the hole in front of the battery."[33]

A detailed plan of the fort dated 1901 shows an 8-inch Parrott lying unmounted near the entrance of the primary magazine near the southeast corner of the fort. A carriage for the same was not far away, perched precariously atop the roof of the magazine. Considering their proximity to the deep hole, both were probably buried there the following year. A second 8-inch Parrott was shown dismounted atop the right face casemates near the salient. It was found not far away during the excavation of 1959. In all likelihood, these two guns were once mounted at positions 6 & 7. The other two Parrotts which had been buried at positions 9 & 10 during the hurricane of 1893 were not shown on the plan. Every ordnance return since the storm, however, listed them, along with the comment "buried in the sand, depth unknown." With the construction of Battery Huger, the right flank was raised to a height of twenty-nine feet and sand added just behind the wall. During this time the two

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[31]Yearly report for 1886, RG 77, Federal Records Center, Georgia; Charleston's *Post & Courier*, August 27, 1969; *The Traveller*, Ft. Lee, Virginia, September 18, 1969.

[32]Sheely, *Excavation Report*, 7.

[33] Capt. J.C. Sanford to Brig. Genl. G.L. Gillespie, August 17, 1901; monthly reports of January, April, and May 1902, RG 77, Federal Records Center, Georgia.

Parrotts were undoubtedly left buried and covered with additional sand. If so, they remain there today, along the lower right flank not far from the concrete apron, under approximately twenty feet of sand.[34]

Although Sanford recommended that the large Rodmans be thrown into the eastern hole, they were instead buried atop the left face. The difficulty associated with moving them to the other side of the fort may help to explain this, but it more likely that the hole was being rapidly filled with other materials. Several brick and concrete breast-height walls and platforms built during the 1870's were being destroyed in 1901-02; much of their rubble was thrown into the hole, probably consuming much of the space in the process. This overcrowding may help to explain why the Parrott was simply buried atop the right face and portions of gun carriages were dumped outside the fort amid the enrockment. Apparently there was simply not enough room in the hole for more guns, which is confirmed by the fact that in 1902 only three cubic yards of sand were required to cap its top.[35]

And so the question remains, are any guns still buried at the fort today? In all likelihood there are three 8-inch Parrott rifles still on site. The pair of missing 13-inch mortars and various other guns which had been at the fort during the post-war years may be there as well, but no records can confirm this. Clearly the only way to confirm the presence of buried guns is to excavate the remaining fill of the eastern half of the fort - or to at least investigate the two probable areas of their burial. Fortunately, both of these burial sites are well-established and accesible. Their excavation would be relatively simple and would not pose a threat to any portion of the original fort or present-day features. But at present there are no plans to conduct such a search. With a wealth of guns already in the collection, it is unlikely that the National Park Service will go to the effort. Ironically, without this embarassment of riches, the guns probably would have been uncovered long ago.

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[34]Survey of fort, July 23 - August 10, 1901, Ibid.

[35]Monthly report for April, 1902, Ibid.

# Chapter Four

# A Truly Remarkable Collection: Fort Moultrie's Guns Since the Civil War

On the night of February 17, 1865, Confederate forces reluctantly abandoned Fort Moultrie. Charleston was at last falling into Union hands. But as Moultrie's defenders filed from their fort for the last time, they felt no disgrace. Despite the terrific pressure brought against them during the war, their fort had proudly done what none other in the Southern Confederacy had managed to do - survive. Along with Castle Pinckney, Fort Moultrie was in Southern hands longer than any other permanent fort. And despite the shelling it received during the war, it was now in remarkably good condition. Wisely the Confederate defenders had taken advantage of the sand surrounding the fort, using it to cover the exposed masonry of the seafronts, for building traverses, and for covering magazines. The guns, although fewer in number than in 1860, were now much heavier and better protected - and certainly capable of worrying any Federal ship captain who came within range.[1]

By 1872, when Moultrie was undergoing a much-needed renovation at the hands of Federal engineers, the fort's nine Confederate guns and four mortars were dismounted, removed, and surveyed to be sold. Nevertheless, few were removed at this time, remaining instead on the reservation, either buried in the sand around the fort or lying north of the sally port on the parade ground. On July 14, 1900, several were sold for scrap, but for some unknown reason they were never removed by their buyer. Despite lying unused for many

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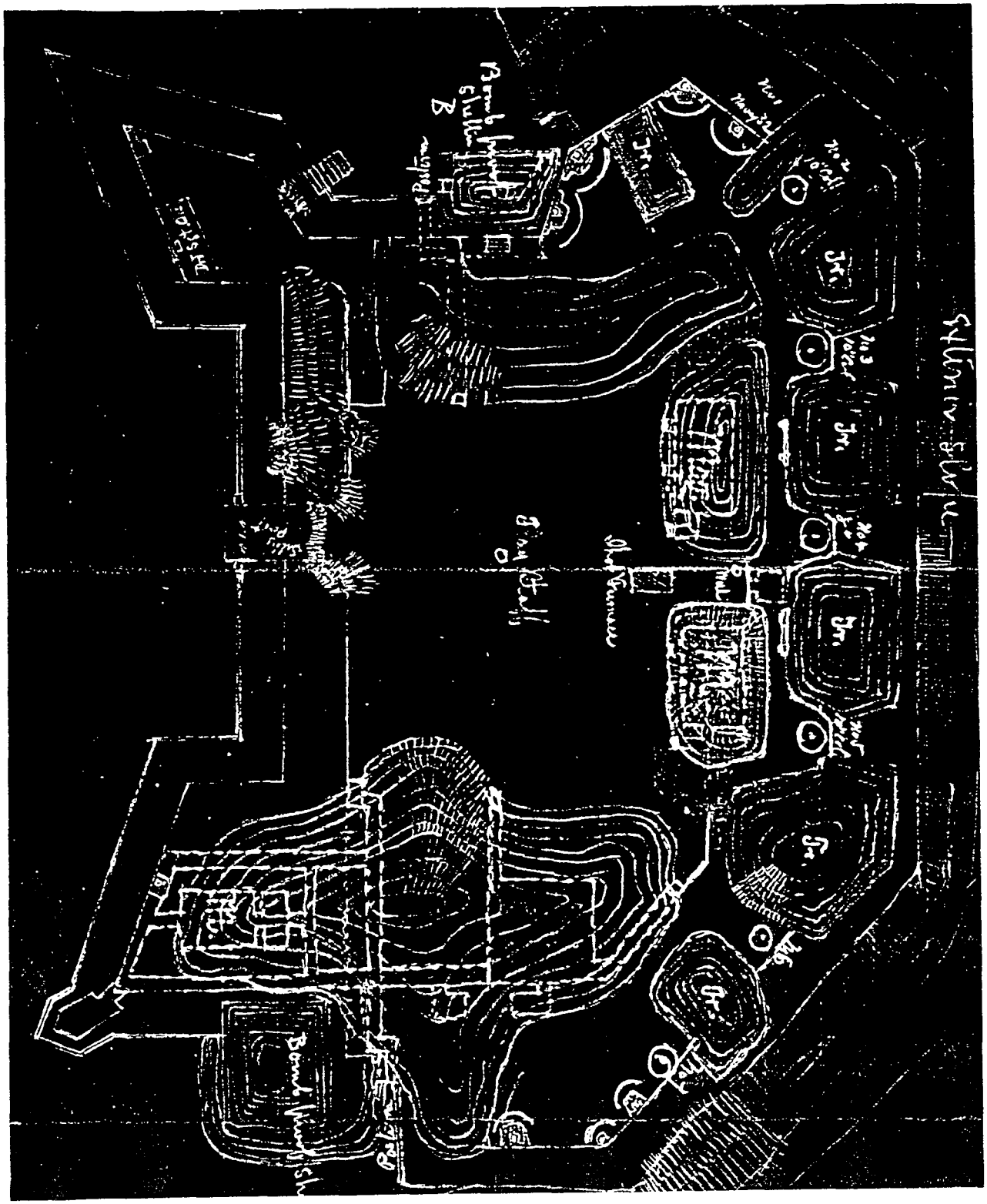
[1]At its height (in November 1860) Fort Moultrie had forty-five guns mounted *en barbette*: ten 8-inch columbiads, nineteen 32-pdrs, and sixteen 24-pdrs. During the war the Confederates replaced many of these with rifles and heavier smoothbores. At the time of the Confederate evacuation, the fort's guns were arranged as follows:

| | | |
|---|---|---|
| eastern outwork | | 10-inch siege mortar |
| southeast face | position no. 1 | navy 32-pdr, rifled & banded |
| | position no. 2 | 10-inch columbiad |
| south face | position no. 3 | 10-inch columbiad |
| | position no. 4 | 8-inch columbiad, rifled & banded |
| | position no. 5 | 10-inch columbiad |
| southwest face | position no. 6 | 8-inch columbiad, rifled & banded |
| | position no. 7 | 10-inch columbiad |
| northwest demibastion | | 24-pdr smoothbore |
| | | 24-pdr smoothbore |
| western outwork | | 10-inch siege mortar |
| | | 10-inch siege mortar |
| | | 10-inch siege mortar |

From the plan filed with the report of Maj. Quincy Gillmore, June 30, 1868, RG 77, National Archives.



**Fort Moultrie showing Confederate modifications and armament, 1868** (National Archives).

years on the parade ground, four 10-inch columbiads and one 8-inch rifled & banded columbiad managed to survive; they are still on the island today. These 10-inch guns were eventually put to use, in a sense, serving as monuments along Middle Street at both ends of the Fort Moultrie military reservation. Initially buried in the ground muzzle-up, they were dug up in the 1930's and mounted atop concrete pedestals. Later, as part of the National Park Service's bicentennial overhaul of Moultrie, the two located just to the north of the northwest demi-bastion were removed on April 21, 1975; one gun was eventually incorporated into cannon row, while the other was mounted near the rifled 8-inch columbiad in the fort's so-called "Civil War section." The other pair of 10-inch columbiads is still mounted atop their 1930's pedestals, along Middle Street approximately 3/4 miles east of the fort.[2]

Many of the heavy guns brought to Sullivan's Island during the war by the Confederates remained scattered along the beach, partially buried in the sand, throughout the postwar years. A few were eventually removed and sold for scrap, but others survived. By 1886 the following guns were still on hand: one XI-inch Dahlgren, one rifled & banded 10-inch columbiad, ten 10-inch columbiads, two rifled & banded 8-inch columbiads, one 8-inch columbiad, two 8-inch seacoast howitzers, two 42-pdrs, four 10-inch siege mortars, and two 8-inch seacoast mortars. Since that time several were presumably removed from the island and used as scrap metal. Some may have been used as fill during the construction of concrete gun emplacements, while others may have simply been buried on the island and still await their chance to be recovered. While the disposition of some of these guns is still in doubt, at least eight survived and are currently located around the Charleston area.[3]

While on an inspection of Fort Moultrie in mid-1865, Major Charles R. Suter reported concern over the fort's lack of offensive power. As Chief Engineer of the Department of the South, Suter considered the fort "an excellent position" but wanted to improve its armament. Since the fort's *enceinte* was relatively small, he recommended that ten haxo-casemates be built along the terreplein for 15-inch Rodmans, with 200- and 300-

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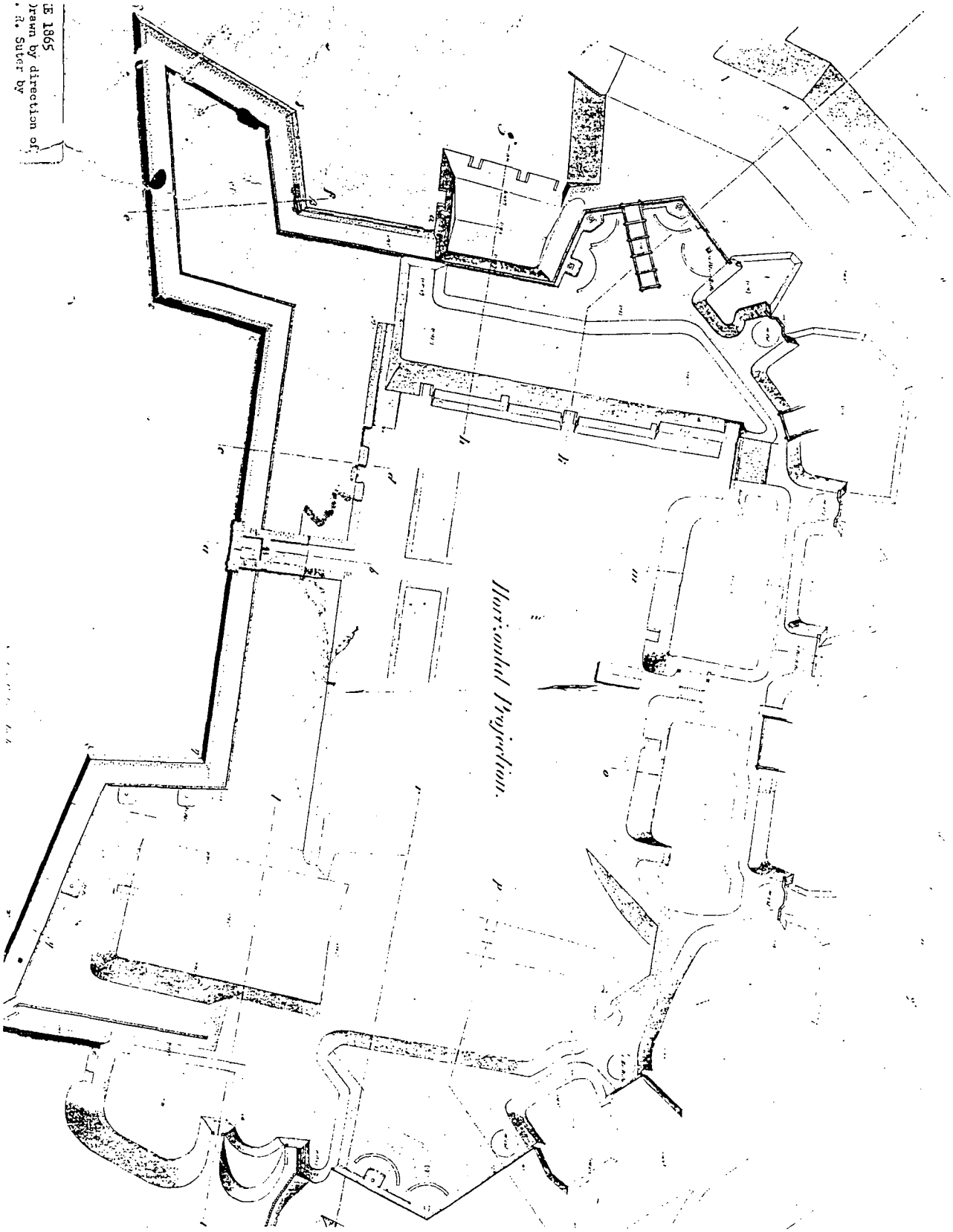
[2]The Confederate columbiad which is still mounted atop the concrete pedestal on the north side of Middle Street was cast at the Bellona Foundry in 1862. Unfortunately its foundry number is unreadable. The one to the south was cast at the Tredegar Foundry on December 10, 1863; its foundry number is 2005. The left trunnion is stamped 1864, the year in which it was inspected and accepted into Confederate service. Tredegar Gun Foundry Book, Virginia State Library, Richmond.

[3]The Dahlgren was salvaged by the Confederates from the wreck of the *Keokuk* in 1863 and was subsequently mounted at Battery Bee on Sullivan's Island. It remained there following the war until its wooden carriage became rotten and collapsed. Falling to the ground, the gun lay partially buried in the sand for a number of years until it was finally removed and mounted in August 1899 at the downtown Battery, first along the seawall and then at its present location. The 10-inch rifle, with bronze trunnions, is presently located on Fort Moultrie's cannon row. Ord. Sgt. James Gilberson to 1st Lt. F.V. Abbott, July 12, 1886, misc. letters, Fort Sumter collection; Ripley, *The Battery*, 48-50.




**Fort Moultrie prior to the 1870's modernizations** (National Archives).

pounder Parrotts mounted atop these *en barbette*. He also suggested that the exposed masonry around the embrasures be covered with five inches of iron plating and the throats closed by 8-inch iron shutters.[4]

Suter's plan, however, was far too costly for postwar budgets. Understandably, Congress was unwilling to invest money in expensive masonry forts - especially in light of their vulnerability to new forms of artillery. As a result, Fort Moultrie's modernization in the 1870's would be modest. Much heavier guns would be used, but their arrangement would be remarkably similar to that used by the Confederates. Large earth traverses and magazines would help to shield and protect a dozen heavy guns, mounted *en barbette*, arranged generally in pairs. Although armament plans would evolve along the way, the ultimate goal was to mount as many as twelve 15-inch Rodmans along the sea faces and five 24-pdrs along the gorge. Even this relatively modest objective was never achieved.[5]

In February 1872 the reconstruction began. Eighty workmen labored to remove the magazines and traverses built by the Confederates, along with twenty-two platforms and nine heavy guns. That same month two 10-inch Rodmans, two 8-inch Parrotts, and four 13-inch mortars were received from the Augusta Arsenal. A pair of 15-inch Rodmans soon followed. Meanwhile, concrete foundations for the wooden platforms were also constructed. Those for positions 7 & 8 were completed first, with four others being ready by the end of the year.[6]

During the efforts to bring heavy guns and carriages to the island in 1872, an interesting problem developed. The old wharf in front of the fort, which rested on a network of stone-filled cribs, had deteriorated to the point that it could no longer receive such heavy loads. Likewise, the Cove behind the fort was practically useless since the water there was of an insufficient depth. Without enough money available to construct a new wharf in front, the decision was made to bring the guns up to the beach in boats at high tide. The boats would ground themselves in the surf while the guns were placed on the beach, typically in the area just in front of the fort. The fort's largest guns, the two 15-inch Rodmans, were similarly put ashore, but on the back beach approximately 200 yards west of the parade ground.[7]

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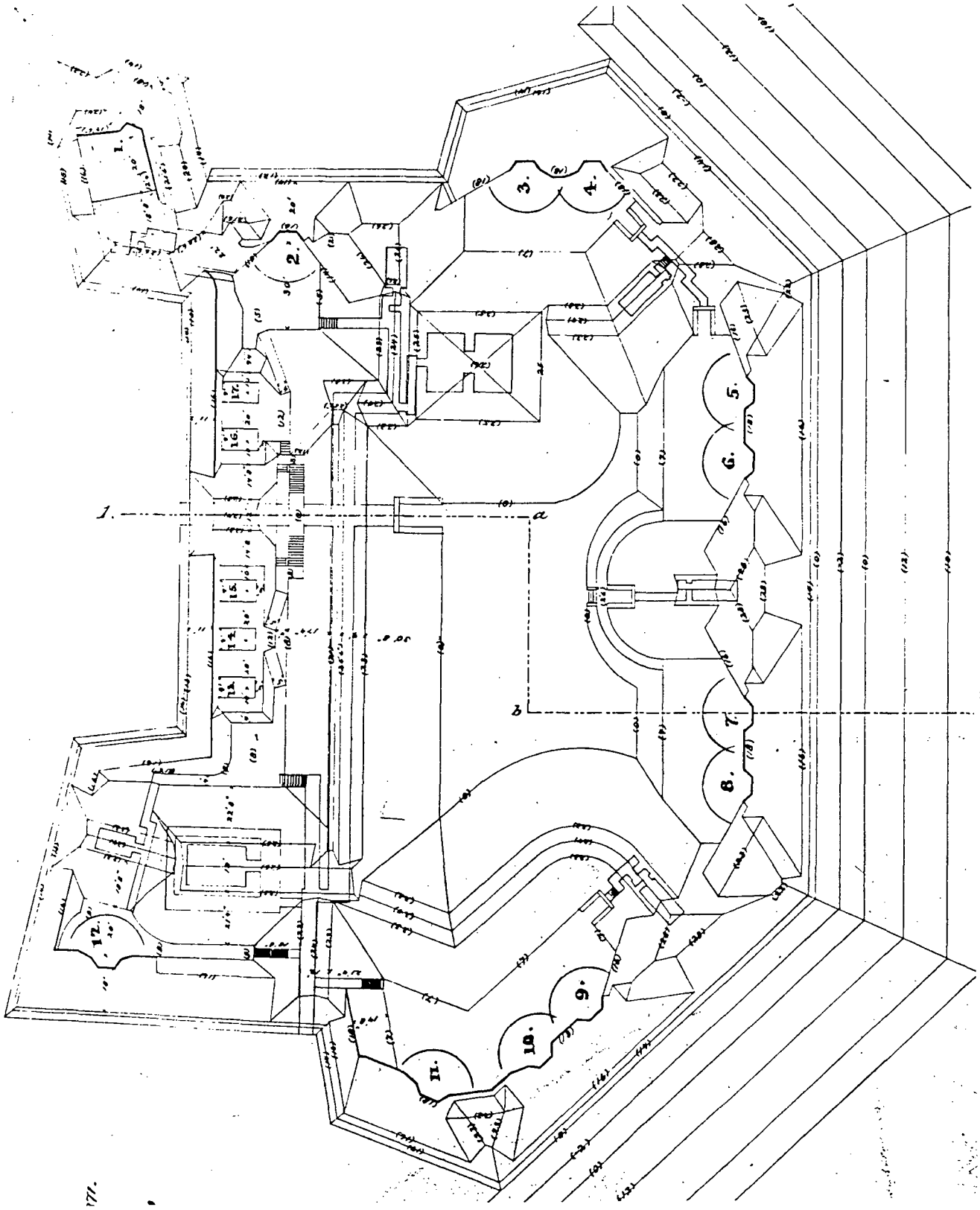
[4]Maj. Charles R. Suter to Delafield, December 12, 1865, Ibid.

[5]Other forts at this time had a massive number of guns mounted. During the 1870's there were 320 15-inch Rodmans listed at the various forts and arsenals, including 33 at Fort Wadsworth, 32 at Fort Hamilton, and 25 at Fort Point. Remarkably, there were 1,273 10-inch Rodmans on hand as well, including 177 at Fort Warren, 90 at Fort Jefferson, 85 at Fort Monroe, and 82 at Fort Schuyler. For a complete list, see RG 156, Entry 84, National Archives.

[6]Edwin C. Bearss, *Fort Moultrie, No. 3*, National Park Service, December 30, 1968, 187-97.

[7]*Ibid.* 194-95.




**Plan for Fort Moultrie's 1870's modernization** (National Archives).

During 1873 the following guns were mounted in positions 4 through 9: 10-inch Rodman (in position 4, along the southeast face), 8-inch Parrott (position 5, south face), 8-inch Parrott (position 6, south face), 15-inch Rodman (position 7, south face), 15-inch Rodman (position 8, south face), and 10-inch Rodman (position 9, southwest face). Two emplacements for 13-inch mortars, with two mortars in each, were completed a short distance north of the fort, in an area located beneath today's Middle Street midway between the fort and the Visitor Center. Generally speaking, Moultrie's arrangement of armament held true for the next twenty-five years, at least until another major renovation of the fort commenced in 1897. But even by 1886, most of the temporary wooden platforms had already become unserviceable due to rotting. The only permanent platform was at position 12, in the northwest demibastion, but it mounted no gun. Like many of the nation's coastal defenses in the 1880's, Fort Moultrie was in disrepair and of little immediate value.

In August 1897, when the threat of war with Spain appeared imminent, the fort was quickly put into a state of readiness. The 8-inch Parrotts, along with their carriages, were removed from their rotten platforms so that new permanent platforms for 15-inch Rodmans could be constructed. Likewise, the left 15-inch Rodman was removed and its platform replaced. By the time the war started in April, these three platforms were ready, but only one 15-inch Rodman was mounted. Soon thereafter, though, the decision was made to replace these with newer concrete batteries for steel breech-loading, rapid-fire guns. Ultimately three such batteries were built inside Fort Moultrie to help protect the nearby minefield: Battery Bingham, completed November 1898, mounted two 4.72-inch Armstrong rapid-fire guns, nos. 11008 & 11687, on pedestal mounts; Battery McCorkle, completed April 1901, mounted three 15-pdr Driggs-Seabury rapid-fire guns, nos. 13, 6, & 14, on balanced-pillar mounts; and Battery Lord, completed December 1903, mounted three 15-pdr Driggs-Seabury rapid-fire guns, Model 1902, nos. 26 & 27, on balanced-pillar mounts.[8]

To make way for this newer construction, the obsolete cast-iron muzzle-loaders were removed. Both 15-inch Rodmans, four 10-inch columbiads, two 10-inch Parrotts, two 8-inch siege howitzers, one rifled & banded 32-pdr, and four 10-inch mortars were subsequently sold on July 16, 1900. Likewise, two 10-inch Rodmans, four 13-inch mortars, and two 8-inch Parrotts were surveyed and ordered to be destroyed. Despite these efforts, fifteen weapons managed to survive. Five of them (one 15-inch Rodman, two 10-inch Rodmans, and two 8-inch Parrotts) were simply buried inside the fort on the western half of the parade ground. They remained buried there until June 20, 1974, when, unexpectedly, they were found by archeologists who were looking for remains of Fort Moultrie's original barracks. With the larger Rodmans now reunited (the second 15-inch gun for many years was lying nearby on the parade ground), they were once again mounted side by side in the fort atop reproduction carriages. Meanwhile, the smaller pair of Rodmans made their way to cannon row, which, incidentally, was completed by the National Park Service on April 19, 1978. Of the two 8-inch Parrotts discovered by the archeologists, one was incorporated into cannon row, but the other is no longer at the park. This second gun was shipped away in

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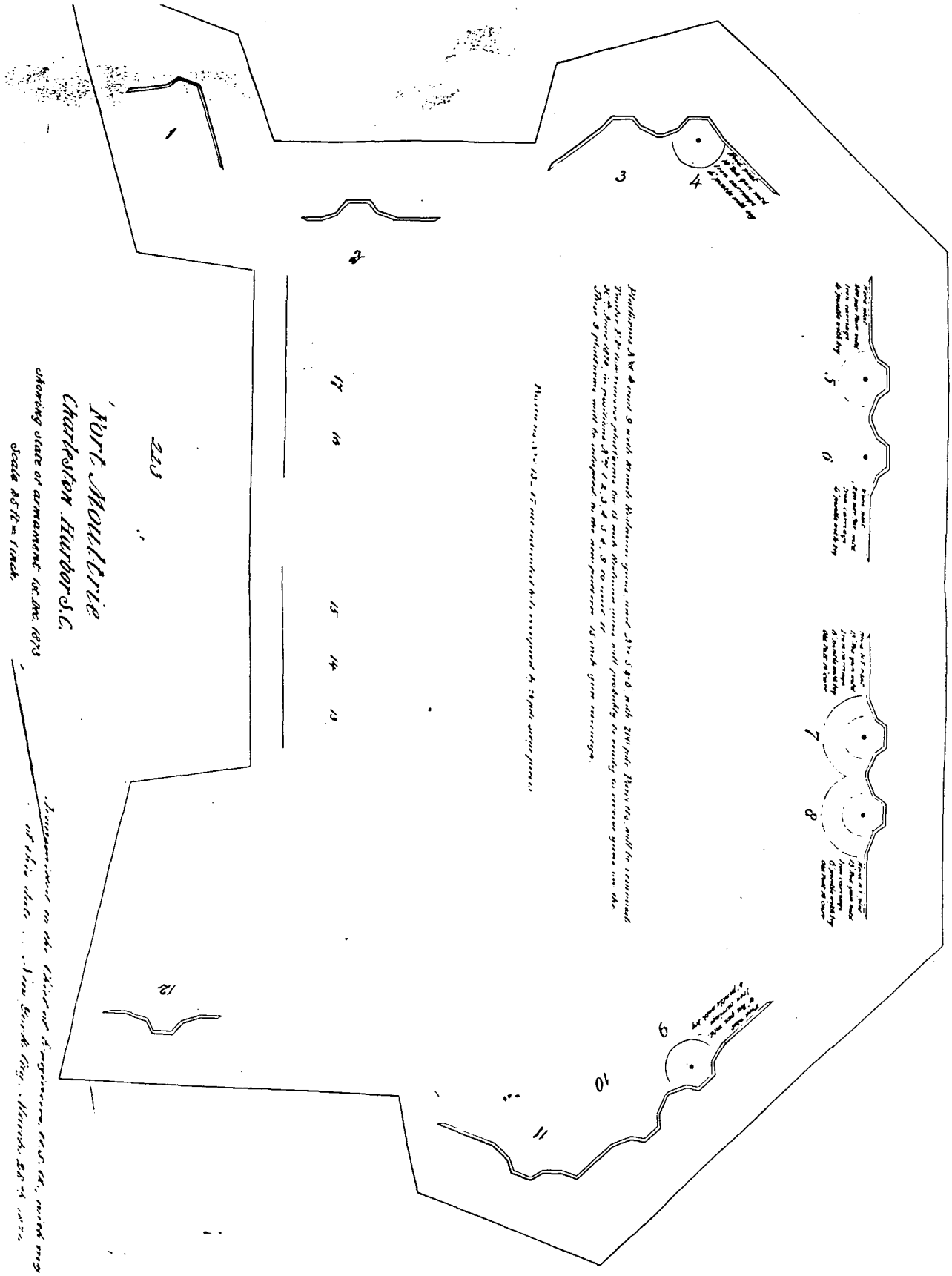
[8] *Ibid.*, 241-62.




**Fort Moultrie, showing state of armament, December 1, 1873** (National Archives).

February 1977 in a trade for the 4.72-inch Armstrong currently mounted atop Battery Bingham. The Parrott, with a registry number of 55 and a foundry number of 873, was manufactured in 1864, weighs 16,412 pounds, and was inspected by Richard M. Hill. As a result of the trade, it sits today in front of the National Guard Armory in Westerly, Rhode Island.[9]

The two powerful 10-inch Parrotts, both shipped from the Frankfurt Arsenal in the 1870's, were never mounted at the fort. Lying unused for years, one was finally sold and apparently removed from the island. The other, however, was buried a short distance from the fort, where it too was later found unexpectedly - this time by workers digging a trench for a water main in November 1950. For eleven years it remained the property of the Township of Sullivan's Island, lying not far from the fort, left unprotected from the elements and further decay. At last, in 1961, it was donated along with the rifled & banded 8-inch to the park. Today it is displayed on cannon row. Of forty-three 10-inch Parrotts ever made, this is one of only thirteen known survivors.[10]

Finally, the four 13-inch mortars which were made at Fort Pitt Foundry in Pittsburgh during the war and then mounted behind Fort Moultrie in 1873, were donated to the city of Charleston in 1901. Since then they have graced the historic downtown Battery park, where countless visitors have marveled at their size and workmanship. Like hundreds of other guns produced during the Civil War-era, clearly they are the product of an earlier, but remarkably innovative age.

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[9]*Ibid.*, 265; Charleston's *Evening Post*, June 20, 1974; Receiving Report, February 5, 1977, and other documents, Fort Sumter files.

[10]Charleston's *News & Courier*, December 10, 1950, January 2, 1955, December 1, 1961; *Evening Post*, November 30, 1961; various letters and documents, Fort Sumter files; personal communication with Wayne Stark, April 1997.

| Description | Location | Cast | Manufacturer | Weight | Length | Bore | Shot | Range | Charge | Serial # |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 pdr, Model 1857 Confederate Napoleon | FOMO V.C. | 1863 | Charleston Arsenal | (1250 lbs) | 72" | 4.62" SB | 12 lbs | 1600 yds | 2.5 lbs | |
| 12 pdr, Model 1857 | storage | 1863 | HNH & Co. | 1231 lbs | 72.5" | 4.62" SB | 12 lbs | 1600 yds | 2.5 lbs | 273 |
| 24 pdr, Model 1819 | FOMO | 1838 | West Point Foundry | 5475 lbs | 124" | 5.8" SB | 24 lbs | 1.1 miles | 6 lbs | 306 |
| 32 pdr, Model 1829 | FOMO (l) | 1830 | Bellona Foundry | 7566 lbs | 125" | 6.4" SB | 32 lbs | 1.1 miles | 8 lbs | 124 |
| 32 pdr, Model 1829 | FOMO (r) | 1830 | Bellona Foundry | 7496 lbs | 125" | 6.4" SB | 32 lbs | 1.1 miles | 8 lbs | 163 |
| 42 pdr, Model 1841 | FOSU | | Cyrus Alger & Co. | 8306 lbs | 129" | 7" SB | 42 lbs | 1.5 miles | 10.5 lb | |
| 42 pdr, Model 1841 Rifled and Banded | FOSU | | | (8465 lbs) | 129" | 7" 7 x 7 hook-slant | shell 50-85 lbs | 2.1 miles | 8 lbs | |
| 8-inch Columbiad Model 1844 | FOSU | | | (9210 lbs) | (124") | 8" SB | 64 lbs | 2.1 miles | 10 lbs | |
| 8-inch Columbiad Model 1858, R & B | FOMO | | West Point Foundry | (8975 lbs) | 121" | 8" 8 x 8 hook-slant | | | | 89 |
| 10-inch, Model 1861 Confed. Columbiad | cannon row | 1862 | Tredegar Foundry | 13290 lbs | 122.5" | 10" SB | 128 lbs | 2.4 miles | 18 lbs | 1656 |
| 10-inch, Model 1861 Confed. Columbiad | FOMO | 1862 | Tredegar Foundry | 13360 lbs | 122.5" | 10" SB | 128 lbs | 2.4 miles | 18 lbs | 1664 |
| 10-inch, Model 1861 | cannon row | 1863 | Fort Pitt Foundry | 14956 lbs | 136.5" | 10" SB | 128 lbs | 2.4 miles | 18 lbs | 156 |
| 10-inch, Model 1861 | cannon row | 1863 | Fort Pitt Foundry | 14980 lbs | 136.5" | 10" SB | 128 lbs | 2.4 miles | 18 lbs | 182 |
| 10-inch, Model 1844 Rifled and Banded | FOSU | 1846 | Cyrus Alger & Co. | (15400 lbs) | 126" | 10" 15 x 15 straight | 210-230 lbs | | | 9 |
| 10-inch, Model 1844 R & B (bronze trun.) | cannon row | 1846 | Cryus Alger & Co. (tentative) | (15400 lbs) | 126" | 10" 15 x 15 straight | 210-230 lbs | | | 7 |
| 15-inch Rodman | FOMO (r) | 1866 | West Point Foundry | 49890 lbs | 192" | 15" SB | 432 lbs | 2.7 miles | 40 lbs | 21 |
| 15-inch Rodman | FOSU (r) | 1867 | West Point Foundry | 49440 lbs | 192" | 15" SB | 432 lbs | 2.7 miles | 40 lbs | 23 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 15-inch Rodman | FOMO (l) | 1867 | West Point Foundry | 50070 lbs | 192" | 15" SB | 432 lbs | 2.7 miles | 40 lbs | 24 |
| 15-inch Rodman | FOSU (l) | | W.P.F. (tentative) | | 192" | 15" SB | 432 lbs | 2.7 miles | 40 lbs | |
| 7-inch Triple-Banded Brooke Rifle | cannon row | 1862 (?) | Tredegar Foundry | 21290 lbs | 153" | 7" 7 x 7 hook-slant | 118 lbs | 4 miles | | |
| 6.4-inch Parrott Rifle (eleven weapons total) | FOSU | | West Point Foundry | (9700 lbs) | 155" | 6.4" 9 x 9 straight | 71-92 lbs | 4.8 miles | 10 lbs | |
| 8-inch Parrott Rifle | cannon row | 1864 | West Point Foundry | 16487 lbs | 162" | 8" 11 x 11 straight | 146-75 lbs | 4.5 miles | 16 lbs | 56 |
| 10-inch Parrott Rifle | cannon row | 1864 | West Point Foundry | 26900 lbs | 177" | 10" 15 x 15 straight | 250 lbs | 2.5+ miles | 26 lbs | 5 |
| 10-inch Seacoast Mortar, Model 1819 | FOSU | | | 3861 lbs | 32.25" | 10" SB | 88 lbs (shell) | 1.1 miles | | 4 |
| 13-inch Seacoast Mortar, Model 1861 | cannon row | 1862 | Fort Pitt Foundry | 17196 lbs | 54.5" | 13" SB | 218 lbs | 2.4 miles | 20 lbs | 104 |
| 4.7-inch Armstrong Breach Loader | Battery Bingham | 1898 | Armstrong, Whitworth & Co. | 4676 lbs | 193.5" | 4.7" 22 x 22 straight | 45 lbs | 5 miles | 10 lbs | 121-24 |
| Dummy 3-inch 15pdr Model 1911 | Battery McCorkle | 1912 | Watervliet Arsenal | | 170" | smooth bore | 15 lbs | | | |
| 90mm M1 A2 Anti-Aircraft gun | Battery Jasper | 1943 | The Wheland Co. | 2505 lbs | 184" | | | | | 2025 |

FOMO - Ft. Moultrie FOSU - Ft. Sumter V.C. - Ft. Moultrie Visitor Center cannon row - located between Ft. Moultrie and Battery Jasper
(1250 lbs) or (124") - general norms; used when specific data is not available or weapon has been damaged or altered
(l) or (r) - refers to left or right weapon when two are mounted side by side
HNH & Co. - Henry N. Hooper & Co. of Boston, Mass. SB - smoothbore R & B - rifled and banded

Data based upon markings and measurements of weapons in the Ft. Sumter National Monument collection (38 total guns). Ranges and charges based largely upon contemporary ordnance manuals. Generally speaking, ranges refer to maximum distances while charges represent *typical service* charges, not maximum charges. Incomplete areas in the chart are the result of obliterated markings on the weapons or information which is presently inconclusive.

Compiled by Mike Ryan, Interpretive Ranger, Ft. Sumter National Monument, May 1996