

# UNCLE SAM'S BIG GUNS TO BE AT BUFFALO

## Coast Defenders of Mammoth Size—Huge Rifles Such as Are Used Upon the Secret Fortifications to Be Shown at the Pan-American Exposition.

IT HAS sometimes been said by unthinking people that the seacoast cities of the United States are not well defended. A flood of new light will be let into such gloomy minds by the Ordnance exhibit of the War Department at the Pan-American Exposition. When the Exposition opens for its six months' season at Buffalo on May 1 of this year, the early visitor will find the largest and most powerful guardians of our seacoasts ever exhibited by the United States Government. Even the smaller of the two great new guns in the Government exhibit at the Exposition will be larger than any ever before displayed by our Uncle Sam.

Captain Peter C. Harris, who represents the War Department, in charge of the entire exhibit, has been engaged actively for months upon his great work of collecting the newest display of the kind ever made in this country. It was an absurd question perhaps that I asked when I inquired if his exhibits would be ready on May 1, as though there were any other alternative for a soldier. The Captain looked reproachfully at me.

But of the guns—great guns, indeed; big around as a locomotive boiler, thirty odd feet long, with a more savage muzzle than ever coughed destruction upon any hostile fleet; built with the accuracy of a watch; so delicate in adjustment that a little finger may traverse the gun, thus moving a weight of nearly half a million pounds, yet a machine to spout a volcanic blast and to create an earthquake at the will of man!

The big gun of which I speak is a United States Army twelve-inch breech-loading rifle, model of 1895, mounted upon a disappearing carriage. Its weight, stripped of everything, even the breech block, is 115,000 pounds. Its total length is 36 feet 10 inches. The maximum diameter at the breech is 45 inches. It throws an armor piercing shot weighing 1,000 pounds, the length of which is three and one-half feet. It also throws a projectile, an armor piercing shell weighing 1,900 pounds, four feet long, carrying a bursting charge of 39.4 pounds of gun cotton. The charge of powder is 240 pounds of smokeless or 490 pounds of brown prismatic powder. The muzzle velocity of the projectile under the above conditions is 2,900 feet per second, with a maximum pressure per square inch of 27,000 pounds. The muzzle energy is 36,671 foot tons. The power of penetration in steel at the muzzle is 30.9 inches, at 1,000 yards 23 inches, at 2,500 yards 20 inches and at 5,000 yards 23.5 inches. The total weight of the gun and carriage is 477,950 pounds. The carriage is twenty-five feet in diameter at the base, and the gun when in firing position is seventeen feet above the base of the carriage. When the shot is fired, the recoil causes the mechanism to lower the gun seven and one-half feet, behind the parapet.

The gun has an accuracy of aim for about eight miles, and the extreme range is about double that distance. As I have said, guns of this type have never before been exhibited by the United States Government, and they are designed for use in secret fortifications, to which no visitors are admitted under any circumstances. The gun was manufactured at Watervliet Arsenal, near Troy, N. Y. The carriage was made at the Watervliet Arsenal, near Boston. The disappearing carriage was designed several years ago by Captain Buffington, now Brigadier General and Chief of Ordnance, and improved and adapted to modern steel rifles by Captain William Crozier, Ordnance Corps, United States Army. It is known as the Buffington-Crozier carriage. The mounting of these mammoth pieces of ordnance has been in the immediate charge of Lieutenant R. H. C. Kelton and a small detail of artillerymen.

To enable the observer readily to make an intelligent comparison of the mounts of our seacoast guns Captain Harris has caused to be placed by the side of the great twelve-inch gun a ten-inch rifle on a barbet carriage. In a barbet carriage the rifle is at all times exposed above the parapet. The reader may remember the discussion on the subject between General Miles and the Ordnance Board, the general not favoring the disappearing device, chiefly on account of its complicated mechanism and its liability to get out of order. Each carriage appears to have its particular use. On elevated sites the parapet furnishes all the protection required, but on a flat coast the disappearing carriage would seem to possess very great advantage. It is thought that on low sites the rifle must be mounted either on a disappearing carriage or in a barbet. The expense of a turret estimated at about four and a half times the cost of the disappearing carriage. The Ordnance Board on Ordnance and Fortifications a number of years ago decided in favor of the disappearing carriage, and the department has been laboring to obtain a satisfactory one. The one shown at the Pan-American Exposition is considered the most perfect in the world.

The ten-inch rifle on the barbet carriage is from the model of 1895 and weighs 67,700 pounds. Its total length is 30 feet 7 inches, and the diameter of the breech is thirty-seven inches. The projectile is an armor piercing shot or shell. The shell carries a bursting charge of 24.4 pounds of gun cotton and weighs 554 pounds, having a length of four feet. The solid shot is three and one-half feet long. The powder charge is 140 pounds of smokeless powder, and the muzzle velocity of the projectile is 2,300 feet in a second. The maximum pressure per square inch is 37,000 pounds. The muzzle energy with the charge of smokeless powder is 21,088 foot tons. The gun has a penetrating power of twenty inches in steel at 2,500 yards.

At the right of the ten-inch gun a twelve-inch mortar has been mounted, and it is no small affair. Farther to the right is a five-inch rapid fire gun. All are mounted behind sections of a parapet, and the four pieces represent one gun of each type used in seacoast fortifications.

To the left of the great twelve-inch disappearing gun will be exhibited the old seacoast ordnance of the United States, arranged in a historical series, the twelve-inch gun itself representing the climax. Near the small building, specially constructed for this purpose will be displayed the mountain, field and siege guns of the present day, together with types of old guns used in

the different wars in which the United States have been engaged.

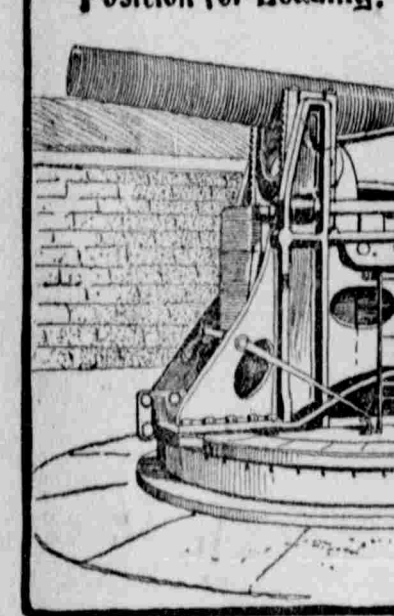
The Ordnance exhibit will show the historical development of ordnance in the United States, a gun representing every type adopted by the United States and showing the evolution of guns, mortars and howitzers. Among the howitzers will be one made in 1792. There will also be thirty or forty trophy guns, displayed according to period of capture. A novel feature will be a trophy fountain, representing a bursting shell, with water spouting from its crevices. This will be mounted on a pile of projectiles, surrounded by trophy guns.

The largest guns mounted in any of our seacoast batteries during the war of 1812 were twenty-four pounders, the diameter of bore being less than six inches and the weight of guns 5,600 pounds. They were a little over ten feet long, and the powder charge was six and eight pounds of black powder. They were mounted upon wooden carriages. In 1829 the thirty-two pounder, with a caliber of 6.4 inches, using a charge of eight to ten pounds of black powder, was adopted, and in 1861 the forty-two pounder, with a caliber of seven inches and using ten to fourteen pounds of black powder, came into use.

In 1844 the eight and ten inch Columbiads fired a shot weighing sixty-five pounds and used a charge of ten to fifteen pounds of black powder. The ten-inch shot weighed 125 pounds, and the powder charge was eighteen and twenty pounds. In 1861 the eight and ten inch Columbiads fired a shot weighing sixty-five pounds and used a charge of ten to fifteen pounds of black powder. The ten-inch shot weighed 125 pounds, and the powder charge was eighteen and twenty pounds.

Rafferty Range Finder—Pan-American-Exposition.

Twelve-inch Breech Loading Seacoast Defense Rifle on Disappearing Carriage in Position for Loading.



ty pounds. In 1861 the first fifteen-inch Rodman gun was cast. These guns were smoothbores of cast iron. The process of manufacture was evolved by General Rodman, who, to prevent injurious strains produced by cooling castings from the exterior, cast these guns on a hollow core and cooled by a stream of water or air passing through the core. Rodman's fifteen-inch gun fired a shot weighing 425 pounds with a charge of forty pounds of black powder and was the first great gun introduced in modern times in any service. Just before the Civil War rifled muskets and guns began to displace smoothbores. Captain Parrott's rifles were the first ones of large caliber used in the United States service. The largest of these had an eight and ten inch bore and were cast hollow and cooled from the interior on the Rodman plan. They were strengthened by shrinking a coiled band of wrought iron over that portion of the gun which surrounds the powder charge. The eight-inch Parrott rifle fired an elongated projectile weighing 150 pounds with a charge of sixteen pounds of black powder. The ten-inch rifle fired a 250-pound elongated projectile with twenty-five pounds of powder.

Inside of the main Government building will be exhibited the machine guns of all kinds, including the automatic gun now being used by the United States Army in the Philippines and China, showing the development of these arms from the match lock, wheel lock, flint lock and percussion cap lock to the breechloading magazine small arms of today.

In the Engineering section of the War Department will be exhibited models of engineering work, both military and those constructed by our Engineer Corps in the river and harbor work.

Among the latter will be models of the breakwater being constructed in Buffalo harbor. A very interesting collection of models of engineering work on the Mississippi River will also be displayed. Two of the Mississippi models—the Hydraulic Dredging Plant and Hydraulic Grader—were given the grand prize in the recent Paris exposition.

In the Signal section of the War Department will be exhibited models of

partment exhibit will be displayed all instruments and appliances used in communication by flag, heliograph, wire, telegraph, cable and by wireless telegraphy. Wireless telegraphy will be in operation at all times during the Exposition, one station being located at the Government building on the grounds and the other station some miles away, probably at Fort Porter. The Military Academy at West Point has never been represented at any previous exposition. A very complete and interesting exhibit, showing history, curriculum, plant of the Academy, its work and workings, will constitute a part of the War Department exhibit. The enclosure of the West Point exhibit will have the form and appearance of regular cadet barracks, the top of the tower at each corner. A committee of professors of the Military Academy has been appointed by the superintendent of the Academy to prepare this exhibit. C. W. Larned, Professor of Drawing, who is a member of the committee, has

reau of Ethnology, will be especially unique. Representatives of all the tribes now in the country will be brought to the Exposition. The historic old council house of the Iroquois will be reproduced in bark by the Indians, who have gathered and prepared the material themselves. At the Exposition they will follow the customs of their early ancestors in making weapons, tools, utensils, dolls and knickknacks. Corn will be ground in stone mortars 300 years old, and bread will be made in the crude way known to the Six Nations as they learned it in time immemorial. For the time being the Indians will discard what civilization has brought them and live in the wigwams as their ancestors lived, ready for the battle or the chase. Interpreters will be provided so that the public may talk with the Indians who do not understand English. Their various festivals will be celebrated, with the customary dances and weird ceremonies.

Under the Department of Agriculture there will be a museum of cereals, tobacco, animal and vegetable fibers illustrative of distribution, the effect of transplantation, of changes of soil, cli-

ments showing important periods in the history of the United States, departmental publications and a number of old lawbooks will also be sent. A special feature of interest under this department will be the photos and views of state prisons and prisoners under the modes of employment and discipline of prisoners.

The Postoffice Department will have a larger space at this Exposition than it has ever occupied at any previous exposition in this country—5,000 square feet. Models of all the various methods of mail transportation employed in this country and our newly acquired territories will be exhibited, and these will take up the main part of the exhibit. They will include models of domestic and international mail steamships, railway postal cars, mail wagons, pneumatic mail carriers, a model of the overland coach, a figure of the "Pony Express" and large models of rural collection and distributing wagons, in themselves postoffices on wheels. In addition, there will be an array of stamps, envelopes and cards, domestic and foreign, with models of Cuban, Porto Rican and Filipino mail carriers as they were under Spanish rule;

Twelve-inch Breech Loading Seacoast Defense Rifle on Disappearing Carriage in Firing Position.



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Among the exhibits collected by the Treasury is one of a lighthouse in full operation, with models of lighthouses showing styles of construction; a coin stamp in operation, showing the coining of money at the rate of 90,000 coins per hour; a complete collection of the coins of all nations and a set of medals struck by the mint in Philadelphia; a model of a quarantine station, illustrating the care of the Government in preventing the introduction and spread of contagious diseases; models of Marine Hospital operating rooms, with X-ray apparatus, and a model of a vessel especially constructed for deep sea sounding, showing sounding lines and apparatus used in measuring the depths of the water. The department will also construct a life saving station upon the shore of Lake Erie, showing all modern devices, including a lifeboat and a surfboat, with captain and crew of ten men, who will give exhibitions daily, illustrating the actual operations of all the devices for saving life along our coasts.

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The Postoffice Department will have a larger space at this Exposition than it has ever occupied at any previous exposition in this country—5,000 square feet. Models of all the various methods of mail transportation employed in this country and our newly acquired territories will be exhibited, and these will take up the main part of the exhibit. They will include models of domestic and international mail steamships, railway postal cars, mail wagons, pneumatic mail carriers, a model of the overland coach, a figure of the "Pony Express" and large models of rural collection and distributing wagons, in themselves postoffices on wheels. In addition, there will be an array of stamps, envelopes and cards, domestic and foreign, with models of Cuban, Porto Rican and Filipino mail carriers as they were under Spanish rule;

Letters of Statesmen.

The State Department will illustrate the workings of the Diplomatic Bureau, Consular Bureau, Bureau of Statistics, Bureau of Accounts and a number of other divisions of the department. An exhibit of historical archives and letters of great men will also be made under the auspices of the State Department.

Among the exhibits collected by the Treasury is one of a lighthouse in full operation, with models of lighthouses showing styles of construction; a coin stamp in operation, showing the coining of money at the rate of 90,000 coins per hour; a complete collection of the coins of all nations and a set of medals struck by the mint in Philadelphia; a model of a quarantine station, illustrating the care of the Government in preventing the introduction and spread of contagious diseases; models of Marine Hospital operating rooms, with X-ray apparatus, and a model of a vessel especially constructed for deep sea sounding, showing sounding lines and apparatus used in measuring the depths of the water. The department will also construct a life saving station upon the shore of Lake Erie, showing all modern devices, including a lifeboat and a surfboat, with captain and crew of ten men, who will give exhibitions daily, illustrating the actual operations of all the devices for saving life along our coasts.

Photographs of Famous Lawyers.

All of the portraits of the Attorney Generals from 1789 to the present time will be sent on by the Department of Justice, together with photographs of other famous lawyers and judges. Doc-

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The transportation and arrangement of all these exhibits are under the board