

Orange Mills at Algonquin Park

Site History and Visitor Guide

ORANGE MILLS Algonquin Park is the site of historic Orange Mills, the remains of an early gunpowder factory on Bushfield Creek, a tributary of Quassaick Creek, where high-quality “black powder” was made between 1815 and 1901.

GUNPOWDER America’s early road, canal, and railroad construction, mining and quarrying, and firearms and cannons all used black powder, an explosive combination of charcoal, saltpeter (potassium nitrate), and sulfur. At the factory here on Bushfield Creek, imported saltpeter was mixed with sulfur from Sicily and charcoal made from willow trees planted on the factory grounds.



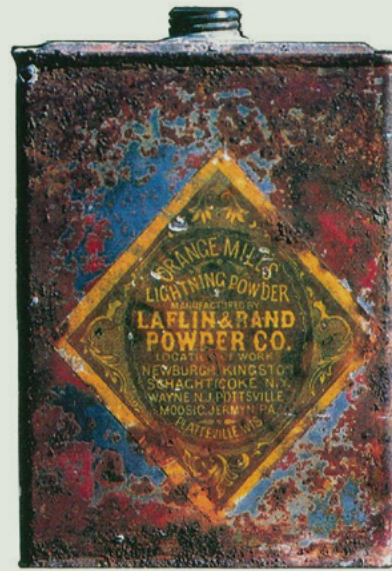
Wash and Change House where workers changed clothes before and after shifts, announced by a bell in the cupola. Source: Milestone Heritage Consulting

EARLY INDUSTRY The first industry here at what is now Algonquin Park was a water-powered sawmill established by Elnathan Foster about 1790. Gunpowder was made in several small mills in New York during the Revolutionary War. During the War of 1812, an inland gunpowder mill was built in Schaghticoke, New York, in case the British attacked powder mills on the Atlantic coast.

FIRST GUNPOWDER MILL In 1815, Asa Taylor acquired Foster’s Bushfield Creek sawmill and converted it to a small black powder factory with water-powered “stamp mills,” machines that dropped heavy pestles into bowl-shaped mortars to crush the ingredients. After three explosions, luckily without injuries, Taylor & Company stopped gunpowder manufacturing in 1818.

ROGERS ORANGE MILLS Daniel Rogers bought Taylor’s factory in 1818 and enlarged it, constructing more than thirty new stone factory buildings, including gunpowder grinding “wheel mills.” After Rogers died in 1838, the gunpowder works were idle for seventeen years. In 1855, Rogers’ sons formed Rogers & Company and ran the works until 1859. The brand name “Rogers’ Orange Powder” became associated with Orange Mills products. Gunpowder making was dangerous work, and twenty-eight men died in seventeen separate explosions between 1829 and 1859.

SMITH & RAND In 1859, the Smith & Rand Company acquired Orange Mills to make black powder specifically for sporting and hunting rifles. Smith & Rand, a large gunpowder maker with a factory in Kingston, New York, expanded Orange Mills to cover 190 acres and added new factory



At top: Laflin & Rand Powder Company “Orange Mills Lightning Powder” gunpowder tin. Source: Preserve Algonquin Park; above: Label from pre-Civil War-era Rogers & Company gunpowder tin. Source: Hagley Museum & Library.



Group portrait of Laflin & Rand Orange Mills gunpowder mill workers, about 1900. Source: Hagley Museum & Library

buildings, making the works “among the most complete and extensive in the country.” Orange Mills became one of the largest pre-Civil War gunpowder works in the US. In 1864, during the war, Smith & Rand was one of fifteen suppliers of rifle powder to the Union army.

LAFLIN & RAND In 1869, Smith & Rand combined with the Laflin & Smith Company to form the Laflin & Rand Company, which became a major US gunpowder manufacturer with works in Illinois, Iowa, Louisiana, Missouri, and Pennsylvania, and in New York at Catskill, Esopus, Saugerties, and Orange Mills at Newburgh. At Orange Mills, Laflin & Rand expanded saltpeter production, built a testing laboratory, and shipped powder from a nearby dock on the Hudson River. Orange Mills made six grades of black powder, including “Orange Extra Sporting,” “Orange Special,” “Orange Ducking,” and “Orange Lightning,” advertised as “the best sporting powder made in the United States, or in the world.” Orange Mills employed up to thirty-five workers in this era. Gunpowder production peaked in 1894 but ended in April 1901. Charcoal production from the willow trees on the property continued until 1908.

DUPONT The E. I. du Pont de Nemours Company, the largest and oldest explosives maker in the US, acquired Laflin & Rand and Orange Mills in 1902. Éleuthère Irénée du Pont de Nemours (1771–1843) came to the US from France in 1800 and established the Elutherian Mills gunpowder factory at Wilmington, Delaware, the birthplace of the DuPont explosives and chemicals business. The Elutherian Mills is one of the few other surviving historic gunpowder mills in the US. DuPont

acquired Laflin & Rand in an effort to dominate the US black powder industry, and by 1907 DuPont controlled 75 percent of production. DuPont ended gunpowder making at Orange Mills to avoid violating the Sherman Antitrust Act forbidding industrial monopolies. They continued charcoal making at Orange Mills, shipping it to their plants at Schaghticoke, New York, and Wayne, New Jersey. DuPont remained a presence in Newburgh, operating their nearby “Fabrikoid” artificial leather plant until 1967.

ALGONQUIN PARK In 1919, former Orange Mills superintendent Albert N. Waring bought the gunpowder works property and named it DuPont Park. In 1929, Waring sold the land to Franklin Delano Roosevelt’s uncle, Frederic A. Delano of nearby Balmville, who named the park “Algonquin” after the regional Native Americans, and leased it to the City of Newburgh Recreation Department.

WPA IMPROVEMENTS In 1934, Delano donated Algonquin Park to the City of Newburgh with the agreement it would become “forever a wooded public park or place of resort and recreation.” Between 1936 and 1939, the US Federal Works Progress Administration put local designers and laborers to work restoring Orange Mill’s factory buildings, repairing pond dams and retaining walls, and building a new rustic Shelter House.

CITY PARK, COUNTY PARK The City of Newburgh owned Algonquin Park until 1978, when it became an Orange County park. Orange Mills, a rare surviving example of a nineteenth-century US gunpowder works, was listed in the National Register of Historic Places in 1997. Orange County welcomes you to visit other county-owned historical sites, including D&H Canal Park, and the Brick House, Farmers, Hill Hold, and Neversink Valley museums.



This guide is a joint project of the Office of the Orange County Historian and the Office of Orange County Parks and Recreation, created in 2019 by Milestone Heritage Consulting

GUNPOWDER MAKING AT ORANGE MILLS

ORANGE MILLS was a complex nineteenth-century industrial site with an elaborate waterpower system and mill building and transportation features characteristic of factories that made gunpowder and explosives.

RUNNING WATER from Bushfield Creek, which flows from west to east (left to right) across the site, provided power to the gunpowder mill buildings. Water from three dammed ponds was diverted through tunnels and open channels to turn waterwheels and turbines that drove the machinery in the mill buildings. Spent water flowed from each mill into the next pond and was reused to power the mill buildings downstream, until it eventually rejoined the creek. Orange Mills owner Lafin & Rand Company replaced waterpower with stationary steam engine power by the end of the nineteenth century.

MILL BUILDING walls were built thick to absorb vibrations from the heavy rotating gunpowder-making machinery. To minimize damage from accidental explosions, the buildings were spaced far apart and protected by rock-and-timber blast barricades, no longer standing. Each building had three stone walls and a wood-frame roof and fourth wall to direct the force of a blast away from other buildings. The wood walls were hinged and could be opened in good weather. Workers moved materials between buildings on a network of elevated wood runways in carts with wood wheels to prevent sparks that could ignite explosions.



A typical gunpowder "wheel mill" had two heavy rotating wheels that turned in a round pan to grind the ingredients to a fine powder. Source: Hagley Museum & Library

ORANGE MILLS BUILDING KEY • Numbers follow gunpowder manufacturing steps.

1. HENRY ROGERS 1818 MILLS Site of the first gunpowder mills here to use "wheel mill" grinding machines.

2. CHARCOAL PULVERIZING BUILDING Wood from willow trees grown on site was baked in airtight iron tanks to make wood charcoal, which was finely ground here using water-powered grindstones.

3. SALTPETER BUILDING Imported saltpeter (potassium nitrate) was purified by washing, boiling, and drying, and was then finely ground.

4. WHEEL MILLS Charcoal, saltpeter, and sulfur were mixed and ground with wheel mills in these four separate buildings that were added to the factory over time.

5, 6. CHARGE HOUSES Used for storing finished gunpowder and gunpowder ingredients between production steps.

7. PRESS BUILDING Here the mixed and ground gunpowder was mechanically pressed between layers of canvas and copper plates to make thin, dense sheets of "wheel cake."

8. SMALL GRAINERY BUILDING The wheel cake was crushed between toothed rollers here, sifted into different-size grains through wire screens, and spread out to dry.

9. GLAZE BUILDING SITE Here, the gunpowder grains were slowly tumbled in horizontal barrels with powdered graphite to make them round and moisture-resistant.



10. DRY HOUSE In this last production step, the finished gunpowder was dried with steam heat to remove all moisture.

PACKING In buildings no longer standing, the gunpowder was sorted by size and packed in tins and kegs for shipment to customers.

11. 1868 BOILER/ENGINE ROOM The first stationary steam engine to power gunpowder-making machinery at Orange Mills was built into this hillside to protect it from accidental explosions.

12. WASH AND CHANGE HOUSE This iconic Algonquin Park building is where Orange Mills gunpowder workers changed into and out of work clothes and washed with hot water after shifts, which were 10 hours long and announced by a bell, still hanging in the cupola.

13. WPA SHELTER HOUSE Built in the 1930s on the site of an Orange Mills saltpeter mill by the Works Progress Administration to house concessions and restrooms.

14. GATEPOSTS These two stone piers mark the original Orange Mills gunpowder factory entrance.