MEMOIR

OF

JOHN NEWTON.

1823-1895.

BY

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BIOGRAPHICAL MEMOIR OF GENERAL JOHN NEWTON.

General JOHN NEWTON was born at Norfolk, Virginia, August 24, 1823, and died at New York city May 1, 1895, after a distinguished career as a soldier and as an engineer.

He was the son of Thomas Newton, who represented in Congress the Norfolk district for about thirty years. Entering the Military Academy as a cadet in 1838, he was graduated in 1842, and entered the engineers, remaining an officer of that corps until retired, at his own request, on August 27, 1886.

After leaving West Point he had a varied experience on many works. He became a First Lieutenant in 1852, and previous to that time had served as Assistant to the Board of Engineers, as Assistant Professor of Engineering at the Military Academy, as Assistant Engineer in the construction of Fort Warren, Boston Harbor, and of Fort Trumbull, New London Harbor, and as Superintending Engineer of Construction at Fort Wayne, Michigan, and Forts Porter, Niagara, and Ontario, in New York.

While a First Lieutenant he conducted various surveys for river and harbor improvements in Maine and Florida; was Superintending Engineer of Forts Pulaski and Jackson, of fortifications and light-houses at Pensacola, and was member of a commission to devise a plan for improving the St. Johns River, Florida. He was promoted to Captain July 1, 1856. While a Captain he was the Chief Engineer of the Utah Expedition, Superintending Engineer of Forts Delaware and Mifflin, and member of a special Board of Engineers for modifying plans of fort at Sandy Hook, New York.

The outbreak of the Civil War found him at Fort Delaware, and in 1861 he was Chief Engineer of the Departments of Pennsylvania and Shenandoah; later he was employed in the construction of works for the defense of Alexandria. On September 23, 1861, he was appointed Brigadier General of Volunteers, and served till the close of the war, having been appointed Major General of Volunteers on May 30, 1863. During this war he was engaged in many of its most important battles. In the peninsular campaign his brigade fought at Gaines' Mill, where

he received the thanks of the Commanding General, and at Glendale. At Antietam he was heavily engaged, and was brevetted Lieutenant Colonel in the Regular Army for his services. At Fredericksburg he was on the left of the line at Franklin's Crossing. In the Chancellorsville campaign he remained with Sedgwick and attacked the line of stone wall at the foot of Marye's Heights, where Burnside's attack had been so severely repulsed in 1862. General Newton carried the position, losing in a few minutes 1,000 men out of the 3,500 that could be brought into action.

At Gettysburg, when Gen. John F. Reynolds was killed, General Newton was assigned to the command of the First Corps, and for his services was brevetted Colonel in the Regular Army.

Transferred to General Sherman's army, he served in the Atlanta campaign, in command of the second division of the Fourth Corps, under General Thomas, at the battles of Rocky Face Ridge, Resaca, Kenesaw, Peach Tree Creek, and at the siege of Atlanta.

At the battle of Peach Tree Creek, General Newton asked of Gen. G. H. Thomas permission to occupy a ridge in advance of the creek, which General Newton deemed important, and did so with little resistance. It proved to be a very important point, and the enemy made repeated attempts to carry it and to turn its left flank, but they were all unsuccessful. Gen. G. W. Smith says:

"If Newton had not taken position on the crest of the hills at the time he did, and had not then formed his troops in the manner he did, it is probable the surprise would have been successful. The consequences of such an event would have been, if not the destruction of Thomas' command, the separation of Sherman's forces into two parts, with an active and vigorous enemy between them; if not defeated in detail, it would have been difficult for the separated forces to unite without a long march to the rear. In either event, Atlanta would not probably have been captured, at least during that campaign."

Gen. George H. Thomas, in his report of the battle of Peach Tree Creek, says:

"The left and center advanced to feel the enemy during the afternoon, and while on open ground and unprotected by any works were assaulted furiously, the attack falling first on Newton's division, which gallantly stood its ground, repulsing charge after charge, although his left was very much exposed during the contest."

In the fall of 1864 General Newton was placed in command of the district of Key West and Tortugas, and served there till the close of the war. He received the brevets of Brigadier General, U. S. Army, for services at Peach Tree Creek, and of Major General, U. S. Army, for gallant and meritorious services during the war. He was also brevetted Major General of Volunteers.

In 1866 General Newton was mustered out of the volunteer service and returned to his duties as an officer of engineers. He was stationed at New York city in 1866, where he had charge of numerous works till he become Chief of Engineers in 1884. Besides the works in his charge he was also a member of many important special boards of engineers. Among these were the Board for the Examination of the Delaware Breakwater Harbor of Refuge in 1871, the board on Captain Howell's plan for a ship canal from the Mississippi river to the Gulf of Mexico in 1873, the board for improvement of Galveston harbor in 1875, the board for improvement of entrance to Charleston harbor, and the board to report on the Brooklyn bridge in 1883. He was a member of the Permanent Board of Engineers for fortifications and for river and harbor improvements from 1879 to 1884.

Among the more important of the works under his immediate charge while stationed at New York were the Hudson River and the Hell Gate entrance to New York harbor. In the Hudson River his works increased in an important degree the navigable depth of the river, greatly to the advantage of the enormous commerce carried by it.

At Hell Gate, where the channels were narrow and crooked and the tidal currents violent, navigation was made still more difficult by small rocky islands and shoals and by a rocky point (Hallets Point) which projected from the Long Island shore. Some of the sharp rock peaks whose tops were under water had their heights reduced by Mr. Maillefert's method—that is to say, by exploding masses of gunpowder on their tops. This method, while effecting an increase of depth over sharp points or ridges, failed when tried on any considerable area, and it was necessary to use other means. Beside the ordinary difficulties of blasting under water at depths which might reach 26 feet below low water, violent currents existed at certain stages of the tide, and a drilling apparatus in the water was constantly exposed to being

struck by one of the stream of vessels passing through the narrow channel. Two conditions had to be fulfilled: First, a stable position for the drills; second, an adequate protection for them against vessels. The method devised consisted, first, of an iron dome and framework 30 feet in diameter, resting on adjustable legs and carrying 21 vertical tubes properly spaced, through which the drills were operated. This satisfied the first condition. To protect this dome from collisions and to operate the drills, a large and heavy scow was constructed, having a well 32 feet in diameter, through which the dome could be lowered and raised by steam power on the scow, which power also operated the drills. The scow was heavily anchored, and after the dome was lowered into position for drilling was able to resist most collisions. A set of holes having been drilled, the dome was raised from the bottom, the scow was swung aside through a distance varying from 175 to 350 feet from the holes. They were then charged usually with nitroglycerine or one of its compounds and exploded by electricity. The drill-holes were nearly six inches in diameter. This drilling scow was used between 1869 and 1875 to remove Diamond Reef, the Frying Pan, Pot Rock, and Way's Reef.

At Hallets Point, which is a part of the mainland of Long Island, a different method was followed. The area to be removed (about three acres) was in plan nearly a semi-ellipse, with a longer axis of 720 and a shorter axis of 300 feet. A cofferdam was first built extending from the land out below the low-water line, and a shaft following its contour was then sunk to a depth of 33 feet below low water. From this shaft ten principal tunnels radiated so as to cross the area to be removed. Far out from the shaft intermediate tunnels were run, making thirty-five tunnels in all. These tunnels at the shaft were from 17 to 22 feet in height and from 9 to 12½ feet in width, diminishing rapidly in size in going outward, in consequence of the downward slope of the rock surface. Transverse galleries, ten in number, were excavated, with an interval of about 25 feet between their center lines. These crossed the tunnels approximately at right angles, and the result was, when the rock excavation was completed, that over the area to be removed there was a rock roof supported by the piers formed by the intersections of the tunnels and galleries. Holes were then drilled in the piers and

the roof, and were charged with 50,000 pounds of dynamite (or of similar compounds), which was fired simultaneously by electricity after the tunnels had been filled with water. The broken fragments of rock were removed by steam grapples, having first been blasted if necessary.

Flood Rock, also called Middle Reef, was removed in a similar manner, the area to be removed being nine acres, instead of three, as at Hallets Point. There were 21,670 feet of tunnels, whose floors were from 50 to 64 feet below low water. When the rock excavation was completed the rock roof was left supported by 467 pillars, and there were 12,561 charges to be exploded simultaneously. Colonel McFarland and Lieutenant Derby, of the engineers, had made careful investigation of what was called sympathetic explosions, and had found that in water dynamite charges encased in tubes of sheet copper 0.005 inch thick could be certainly fired by 10 pounds of dynamite exploded at a distance of 27 feet. This made it possible to reduce enormously the difficulty of exploding simultaneously about 12,000 charges, since an explosion of 10 pounds of dynamite could be made to fire all holes within 27 feet of it. Accordingly, charges of 10 pounds of dynamite were distributed 25 feet apart, there being in all 591 such charges. These were exploded by electricity, and they fired the other charges by the shock transmitted through the water. The total charge of explosives, principally of rackarock (a chlorate compound) was about 240,000 pounds. The visible effect was the rising of a mass of water over a large area high in the air, making an imposing spectacle.

Much uneasiness had been expressed lest the explosion of such large charges at Hallets Point and Flood Rock should do serious damage to buildings in the vicinity. To show his entire confidence that no dangerous results would follow, General Newton guided his little daughter's hand at both places to close the electric circuit that caused the explosion. The novelty, on so large a scale, of the methods used added largely to his reputation as an engineer.

On March 6, 1884, General Newton was appointed Chief of Engineers, and from that time till his retirement, at his own request, on August 27, 1886, he faithfully performed the arduous duties which accompany that office.

For two years after his retirement he was Commissioner of

Public Works in New York city, and was President of the Panama Railroad Company from 1888 till his death, May 1, 1895. On May 3, 1895, the Board of Directors of the Panama Railroad Company adopted the following resolution:

"When, in 1888, General John Newton became the President of the Panama Railroad Company, he had earned a name honored by the nation through forty years of distinguished service in its War Department and on the battlefield, as well as by succeeding years of equally honorable duties in civil life.

"During this long career his fame in his loved profession had steadily grown from early manhood without a check, until his preëminence as an engineer who had successfully met every problem confronting him in great governmental works was fully recognized at home and abroad.

"The duties of the office of president of the corporation, the concerns of which are international and of unusual variety in the management of its system of 6,000 miles, required just such talents as General Newton had so conspicuously exhibited, and the corporation was fortunate in securing them in its behalf.

"We give grateful acknowledgment to the rare fidelity, the patient and studious devotion, the far-seeing discernment, and the unwavering adherence to principles which, with a ripe judgment, made his counsels so valued and his administration so successful.

"But we wish to record, as well, our personal affection for one who was to each a personal friend, and whose invariable amiability and courtliness made business associations with him a rare pleasure and brings to each the sense of a personal loss.

"Therefore be it unanimously

"*Resolved*, That this simple expression of our sentiment be engrossed on the records of the corporation, and under the signature of each director be transmitted to the family of General Newton, with the sincere sympathy of the board."

General Newton was elected a member of the National Academy of Sciences in 1885. In 1886 he received the degree of Doctor of Laws from St. Francis Xavier College. He was married to Miss Anna M. Starr, daughter of Jonathan Starr, of New London, in 1848, and left a widow, a daughter, and five sons to mourn his death.