***It takes more than a good resume to get a government contract.***

# Col. Isaac Williams Smith (1826-1897)

**From: "Transactions of the American Society of Civil Engineers"[i]**

*A notable figure was removed from among the engineers of the Pacific Coast by the death of Isaac Williams Smith, which occurred at Portland, Ore., January 1st, 1897.*

*He was born at Fredericksburg, Va., in 1826, the son of Rev. George A. Smith and Ophelia Ann Williams, the latter a granddaughter of Captain Philip Slaughter, an officer of the Revolution.*

**Figure 1. Isaac Williams Smith, photo on the wall at the Portland Water Bureau.**

*He was educated at the Fairfax Institute at Clairens and at the Virginia Military Institute at Lexington, Va., graduating from the latter with high honors in 1846, at the age of twenty.*

*After graduation he served for a time as assistant engineer under Captain Emory, U. S. A., on the survey of the northeast boundary. Later, receiving an appointment as second lieutenant in Company K, United States Voltigeurs, he served in the detachment under Major Lally in the war with Mexico during one campaign, and was then detailed for recruiting service and stationed at Baltimore. In 1849-50 he was assistant engineer and astronomer on the survey of the parallel between the Creek and Cherokee Indians under Lieutenants Sitgreaves and Woodruff, U. S. A. In 1851 he was assistant astronomer and first assistant on the survey of the parallel between Iowa and Minnesota, Andrew Talcott being chief engineer. In 1852 he was resident engineer on the survey and construction of the Orange and Alexandria Railroad under Chief Engineer Atkinson. In 1853-54 he was assistant engineer upon the Pacific Railroad surveys and explorations along the southern route under Lieutenants Williamson and Parke, of the Corps of Engineers, U. S. A. After a brief sojourn in California, he came north to the newly formed territory of Washington, and was engaged as engineer and*

 

*special agent for the construction of lighthouses on the Straits of Fuca and Shoalwater Bay, the Twelfth Lighthouse District, under Major Hartman Bache, Corps of Engineers, U. S. A. These guides for mariners were erected at New Dungeness, Tatoosh Island and Smith's Island, on the Straits of Fuca, and at Tokes Point, on the coast of southwestern Washington. This work was accomplished with considerable difficulty and peril, journeys to and from the works being made either in small rowboats or Indian canoes through waters that were of a very treacherous character, and often with only Indians for his crew.*

*The uprising of the Indians against the whites all over the northern country, commonly called the Yakima War, occurred during the years 1855-56, and many settlers lost their lives. An armed force was quickly raised, and in the campaign that followed Mr. Smith served as aide-de-camp on the staff of Captain I I. Stevens, then Governor of the Territory, and in command of the volunteer forces engaged in subduing the Indians, and saw much active service. After the close of the war he was engaged for a year or two as United States Deputy Surveyor under his life-long friend, Major James Tilton, also a veteran of the Mexican War, and then filling an appointment as United States Surveyor-General for Washington Territory, and surveyed several of the meridian and standard parallel lines then being established through the trackless and all but impassable forests of western Washington. Completing this work, he was appointed Register of the United States Land Office for the Olympia District, which included the then vast Territory of Washington.*

*In 1862 he joined the rush that came from every point on the Pacific Coast to the newly discovered placers in Cariboo, B. C., where he remained but a short time. On his return from the mines, he went east to his native state and tendered his services to the Confederate government. Receiving the appointment of captain of engineers, later being brevetted colonel, he was continuously employed until the close of the war upon the defenses before Petersburg and Richmond. After the surrender at Appomattox, he returned home, the possessor solely, as described in his own words, "of an old gray uniform, much tattered and worn, a good horse, and a large amount of experience." He soon found employment in the operating department of one of the dilapidated Virginia railroads, but in a few months, in 1866, received an appointment as division engineer on the Imperial Mexican Railroad from Vera Cruz to Mexico under Andrew Talcott, chief engineer, and was placed in charge of the line from Paso-delMacho to Ongaba. He remained in Mexico during the years 1867-68, engaged upon this work and as chief engineer and inspector of drainage and hydraulic work near Tepic for Messrs. Barron & Forbes.*

*In 1869 he was again on the Pacific Coast serving as engineer on construction of the Western Pacific Railroad, later merged into the Central Pacific, and as superintendent of repairs, etc., from Sacramento to San Francisco, under S. S. Montague, chief engineer.*

*In 1870 he entered the service of the_Northern Pacific Railroad Company under Edward A. Flint, engineer of the Pacific Division and W. Milnor Roberts, chief engineer, and was placed in charge of surveys along the Columbia and Cowlitz Rivers in Washington Territory. After a*

 

*few months of service with the Northern Pacific he was entrusted with the design and construction of locks and a canal around the falls of the Willamette River, a few miles above Portland, Ore., a work of considerable magnitude, and of great importance in giving free river navigation from the Willamette valley to the ocean.*

*The contractors not having proceeded with satisfactory diligence, at the end of a year the work was taken out of their hands and carried forward by Colonel Smith with great rapidity. Early completion was of vital importance to his company, as upon that depended a very large state subsidy which would have lapsed had the works not been completed at a certain fixed date, then drawing very near. The Colonel accomplished the desired end in time, and not only secured the large subsidy for his company, but turned over a work of which the excellence of design and thoroughness of execution marked its engineer as a man of notable skill and ability.*

*During the year 1873 but little engineering work was in progress in the Northwest, and Colonel Smith spent a good portion of the time superintending the execution of large land survey contracts awarded by the United States Surveyor General for Washington Territory. In December of that year he was called again to the service of the Northern Pacific Railroad Company, and placed in charge of the survey of the new terminal, city of Tacoma, the location for which had been determined upon a few months before. In the latter part of 1874 he made an examination of the Fraser River in British Columbia, from Soda Creek to Lytton, reporting upon the feasibility of rendering the same navigable by the removal of gravel bars and rocky barriers. In February, 1875, he visited Peru at the invitation of Colonel Edward A. Flint, who hoped to secure for him a responsible position in connection with one of the trans-Andean railways then building.*

*Upon his arrival finding the country again in the throes of civil war, and all railway construction interrupted, he returned at once to California, and, entering the service of the Southern Pacific Railroad Company, was detailed to make surveys for that road in Arizona.*

*A year later, in association with Colonel George H. Mendell of the Corps of Engineers, U. S. A., he made an exhaustive study and report upon the water supply for the city of San Francisco. As Colonel Mendell's chief assistant he had charge of the extensive surveys which were made, including all the available sources of supply.*

*From April, 1876, to April, 1878, Colonel Smith was one of the Board of Railroad Commissioners for the State of California, the other commissioners being Mr. John T. Doyle and General George Stoneman. In May, 1878, he was appointed chief engineer of the Sacramento River Drainage District Commission which had under consideration a project for a drainage canal to carry off flood waters along the west side of the valley opposite Sacramento, from Knight's Landing to Suisun Bay, a distance of 46 miles.*

*The issuance of .bonds to a large amount for this undertaking depended upon the favorable report of the chief engineer. The surveys and examinations showing the project to be*

 

*impracticable, the report of the engineer was decidedly adverse, and the scheme was abandoned. From this time until the spring of 1880, Colonel Smith was chief engineer for the Board of State Harbor Commissioners of California, in which capacity he designed the sea wall for the water front of the city of San Francisco, and constructed upwards of a mile of it, together with its appurtenant wharves.*

*In April, 1880, he was again called to the service of the Northern Pacific Railroad Company, then about to undertake extended surveys of the Cascade Range, north of the Columbia in Washington, for the purpose of deciding upon the location of its line to Puget Sound, and was placed in full charge of the Cascade Mountain surveys. This work he prosecuted with great vigor, employing a large corps summer and winter, and before the end of the next year, 1881, the several routes across the mountains had been thoroughly examined. The route finally adopted, via Stampede Pass, was one of the new lines surveyed and mapped under his direction.*

*In September, 1881, he was appointed to the position of chief engineer of the Oregon Pacific Railroad Company, then engaged in constructing a line eastward from Yaquina Bay, Ore. He remained with this company two years, completing the line as far as Corvallis, about 60 miles, and then resigned and returned to Tacoma, Wash., where he made an examination and report upon the water supply for that city. During the years 1883 to 1885, he was chief engineer for the Tacoma Light and Water Company, designing and constructing the gas and water plants for Tacoma at an expense of nearly half a million dollars, and superintending the works for some months after completion. During this period he also made surveys and designed a system of improvements for the water front of Tacoma Harbor, for the Tacoma Land Company.*

*For many years the city of Portland, Ore., was furnished with water by a private corporation which pumped its supply from the Willamette River. The quality of the water not being satisfactory, the State legislature authorized the city to construct works of its own and placed the entire control of the water system in the hands of a water committee composed of well-known and substantial citizens. Early in the year 1886 this committee called Colonel Smith to its aid and placed in his hands the work of determining the future water supply for the city. After exhaustive surveys he reported in favor of a gravity supply from Bull Run River at a point in the foot hills of the Cascade Range about 30 miles east of the city. The cost of bringing in as large a supply as desired being greater than expected, the construction of the proposed system was not at that time deemed expedient, and the existing system was purchased and Colonel Smith placed in charge as engineer and superintendent, which position he continued to hold until his death. Plans and specifications for the new gravity supply were prepared, and legislative authority having been secured for the issuance of bonds to obtain funds to carry them out, construction of the new system was begun in March, 1893, and completed January 1st, 1895, at an outlay of nearly $3 000 000.*

 

*This, his magnum opus, was the last of a long series of beneficent works he had constructed for the comfort, health and safety of mankind, and he was, happily, permitted to live to see it completed and in successful operation for two years before his death.*

*For several years his leisure hours were spent in the preparation of a treatise on the "Theory of Deflections and of Latitudes and Departures, with Special Application to Curvilinear Surveys and Alignments of Railway Tracks," which he published, and only a few months before his death he prepared a paper on the "Flow of Water in Wrought and Cast-Iron Pipes from 28 to 42 Ins. Diameter," for publication in the Transactions of this Society. **

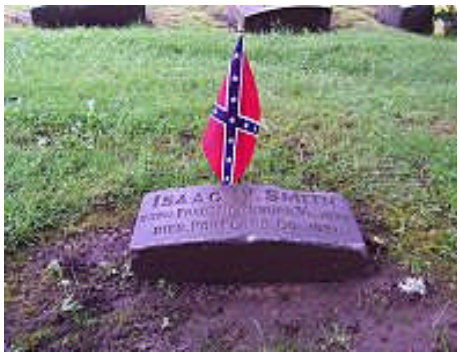

**Figure 2. Gravestone of Isaac W. Smith in Section 3 of Riverside Cemetery in the Teal family plot in Portland, OR.**

*He became a Member of the American Society of Civil Engineers on October 1st, 1873.*

*The foregoing is but a brief epitome of some of the occupations of a long and active life. Colonel Smith's reputation as an engineer of ability and integrity became established early, and his services were continually in demand. That all of the many positions of responsibility which he occupied were faithfully and acceptably filled none can dispute, as many monuments of his versatile genius amply testify. Those who came to know him intimately found a man in whom they could trust, always desirous of dealing justly with all men, and of doing that which was right for the sake of right and because it was in accord with the Divine command. Of commanding presence, he won the love and esteem of a large circle of friends and left an impress for good upon all with whom he came in contact. Although of a domestic disposition, the subject of our sketch never married.*

*The following, from the pen of one who was associated with Colonel Smith at various times, will meet with a sympathetic response in the hearts of all those who ever knew him.*

*"During the various periods when I was associated with Colonel Smith I had the opportunity of seeing him under many and varied circumstances. I can truly say that there was nothing in my whole acquaintance with him but what tended to increase my admiration and respect for the man. He was one of the few engineers whom I have ever been associated with who combined a thorough theoretical knowledge of mathematical principles with a practical grasp of the best methods for the solution of the various problems that were being constantly presented to him in the conduct of his work.*

*"The Colonel was not only a fine mathematician, but his acquaintance with, and pleasure in, the best classes of literature made him always a most charming and instructive companion. Reading seemed to be the kind of rest and relaxation he most enjoyed.*

*"There is one trait which characterized the Colonel to a marked degree, and that is his absolute integrity and incorruptibility. Another trait of his character was his thorough self-forgetting unselfishness. He was not only*

 

*a devoted son and brother, but in his intercourse with the men in his employ he was always thinking of their comfort and welfare rather than his own. Certainly, in all my experience I do not know of another man who could equal the Colonel in his rare combination of strength and purity and gentleness of character. There is one character in fiction of whom the Colonel very often reminded me. I refer t o Thackeray's character of Colonel Newcome.*

*"I shall always feel that it has been one of the privileges of my life to have known as intimately as I did a man of the character of Colonel Smith."*

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[i] Memoir prepared by D. D. Clarke, M. Am. Soc. C. E. and Deputy Surveyor, Edward G. Tilton, C. E., and Robert P. Maynard, C. E. David D. Clarke served under Isaac Smith in many assignments and succeeded him as Superintendent of the Portland Water Works. Memoir published in the **Transactions of the American Society of Civil Engineers.**

 