

Colonel Stephen H. Long and William Norris of Philadelphia started building locomotive steam engines in 1831. The first, *Green Hawk*, about which William Hasell Wilson writes, proved an embarrassing failure, and the locomotive was scrapped later in 1832 after several more faltering test runs. But the second locomotive in the series, *Black Hawk* (shown above as a scale model, and generally resembling its predecessor *Green Hawk* in appearance), made history in April 1834 when it hauled the first inspection trip from Philadelphia to Columbia on the single track then connecting these two points.

“My First Ride behind a Locomotive”

William Hasell Wilson was the son of Major John Wilson, who was engaged by the Pennsylvania Canal Commission to plan and survey the Columbia Railroad in 1827–28. As a precocious 16-year-old, William joined his father’s Engineer Corps as a rodman on his first survey through Chester and Lancaster Counties. Two years later, William became Assistant Engineer in charge of the construction of twenty miles of the new Columbia railroad from Philadelphia to Green Tree (near Paoli), and held that position until April, 1831, when he was named Principal Assistant Engineer in charge of construction of the Columbia Railroad’s entire Eastern Section.

In the summer of 1832, William took his first ride behind a steam locomotive, the *Green Hawk*, heading west from the head of the Belmont Inclined Plane. His first introduction was not to be forgotten, whether recalling the experience of having to commandeer a farmer’s fence rails for fuel, or needing to organize volunteers to form a bucket brigade for water to maintain engine steam. From Mr. Wilson’s memoirs published in 1896, this extraordinary story is shared:

“In the latter part of the summer of 1832 I received an invitation from Colonel Stephen H. Long, of the United States Topographical Engineers, to join in an experimental trip from the head of the inclined plane at Belmont (the inclined plane on the Schuylkill River in West Philadelphia), leaving there about 10 o’clock in the forenoon. ... Stabling my horse, I walked to the head of the plane where I met Colonel Long and a few persons who had come out with him from the city. An ordinary platform car, upon which seats had been temporarily placed, was attached to the *Green Hawk* steam engine, and we moved off at about the designated time. About every mile, as we proceeded, something would go wrong, and a stop would be made for adjustment. Fuel soon began to give out, and recourse was had to rails from the adjacent fences. In consequence of the frequent delays, our objective point, which was the Green Tree Hotel [one mile west of Paoli], was not reached until about 4 o’clock in the afternoon. Fortunately there was a good well of water near the track, from which we were

enabled, by forming a line and passing buckets, to fill the tank of the engine.

“A start was then made on the return trip, and, the interruptions not being so frequent, we reached the head of the plane about 9 o’clock. ... Finally reaching my lodging after 11 o’clock, with the family having retired, I thus ended the episode of my first ride behind a locomotive. I can not say that I enjoyed it.”¹

William Hasell Wilson had a most illustrious railroading career, later serving as head of the Pennsylvania Railroad’s entire Real Estate Department, and ending his career as president of the Belvidere-Delaware Railroad, a company controlled by the PRR. Mr. Wilson died at 91 in 1902.

1 William Hasell Wilson, *The Columbia-Philadelphia Railroad and its Successor*, 1896, pp. 21–2.

The Amazing Climb of the Norris Locomotive *George Washington*

In the mid-1830s, it was generally assumed that, because of a lack of adhesion, steam locomotives could not safely travel on any except practically level track. But a brilliant young locomotive builder from Philadelphia, William Norris, wanted to test that axiom. In 1836 Norris, who had become Matthias Baldwin’s most formidable competitor, had built a locomotive named the *George Washington* that was remarkable in several ways: its colossal weight of fourteen thousand, four hundred pounds; its ten by eighteen inch engine cylinders; and its massive pair of driver wheels measuring forty-eight inches in diameter.

The “Washington” had performed quite well during its trials, and Norris was now ready to pit his locomotive against the Columbia & Philadelphia’s Belmont Inclined Plane at the eastern terminus on the banks of the Schuylkill River. With a rise of 196 feet over a length of 2,800 feet (equal to a 7% grade, or three hundred and sixty-nine feet to the mile), the Belmont Plane would surely test Norris’s confidence.

In his first test on July 10, 1836, and to Norris’s great delight, his *George Washington*, with a trainload of 19,200 pounds, puffed its way remorselessly to the top of the plane in 2 minutes and one second. But immediately skeptics and even mathematicians disbelieved what Norris and his witnesses had purported his new locomotive had accomplished. In those days before photography or other technical means to validate, it was difficult to prove that a task that had been done had really been accomplished.

Railroading owed much of its future success to William Norris’s astounding discovery that locomotives could haul trains uphill. The following account, from the *Railroad Journal* dated July 30, 1836, details the second trial made by Norris and his locomotive *George Washington*:

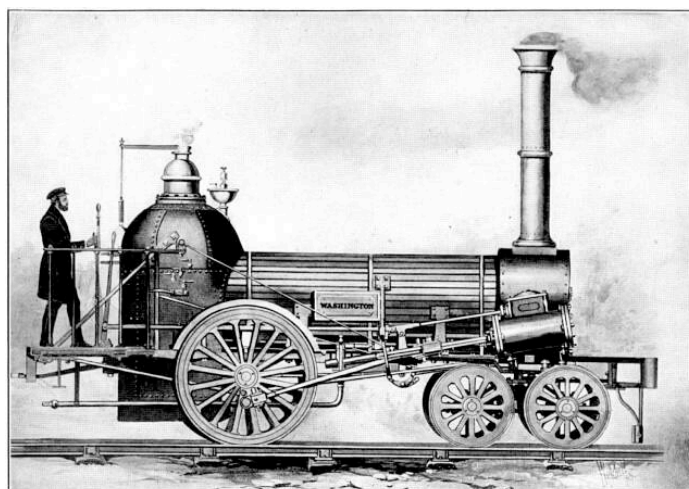
“... Mr. Norris made arrangements with the Commissioners of the Columbia Railroad for the use of his locomotive on Tuesday, July 19 [1836] ... [and] two cars drawn by horses set out with a party of upwards of forty. We arrived at the foot of the inclined plane before 6 o’clock [A.M.] while the rails were yet quite wet with the dew. ... The engine started at the foot of the plane. After proceeding a few feet the wheels were found to slip and the engine returned. It was said that the rails were found to have been oiled at this place; but a small quantity of

sand was strewn on the spot and the engine proceeded. She regularly and steadily gained speed as she advanced to the very top, passing over the plane in 2 minutes [and] 24 seconds. ... So complete a triumph had never been obtained. All present expressed their gratification in loud and repeated cheers.

"The length of the plane is 2,800 feet; the grade 369 feet to the mile, or 1 foot rise in 14.3 feet. The weight of the engine with water was 14,930 pounds; the load drawn up the plane, including the tender with coal and water, two passenger cars with 53 passengers, was 31,270 pounds.

"The party [then] proceeded to Paoli for breakfast and thence to Lancaster, the engine conveying at the same time a number of freight cars. ... We arrived at Lancaster and partook of an excellent dinner. ... We returned in an eight-wheeled car, ... the whole weight attached to the engine, tender and so forth included, must have been over fourteen tons. The time of the run, exclusive of stoppage, from Lancaster to the head of the Schuylkill inclined plane, was 8 hours, 11 minutes, being a distance of 76 miles. On level and straight portions of the road a velocity of forty-seven miles an hour was attained."

1 Charles Frederick Carter, *When Railroads Were New*. (New York: Henry Holt & Company, 1909), pp. 128–32.



THE "WASHINGTON,"

Norris' famous engine which, in 1836, created a tremendous sensation by showing that locomotives could run up grade.

This account was accompanied by a certificate signed by fifty-three passengers attesting the fact that they had actually been drawn up the inclined plane as described.¹

— Roger D. Thorne

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