

[Bonus] AFD Ep 363 Links and Notes - General Averell's Asphalt Empire [Bill/Rachel] - Recording April 6

- This week's episode is about a Union Army General from the American Civil War named William Woods Averell who became an extremely successful businessman after the war by patenting asphalt paving and then fanatically defending the unique patent in the courts as one American city after another immediately began paving its streets during the Second Industrial Revolution.
- https://en.wikipedia.org/wiki/William_W._Averell
 - Civil War Career as a Union officer
 - He was mostly unsuccessful during the war although he was good as a training officer and experienced (but not visionary or bold) as a supply-line raid commander. He had only finished West Point six years before the war and had served in New Mexico in the US Cavalry campaigns against the indigenous nations.
 - He rose during the war from a regular Army Lieutenant to Brigadier General in the volunteer cavalry leading some rough and tumble mounted Kentuckians (and later on West Virginians). He had a few vaguely ok performances (and one bright victory in a surprise attack where he captured hundreds of Confederates in a camp) but mostly a lot of hesitancy. He was fired twice by two different commanders for failing to press forward with resolve when ordered and was exiled back home to western New York by the fall of 1864.
 - Modest success in the March 1863 Battle of Kelly's Ford on the Rappahannock River in Northern Virginia when his cavalry raider division tentatively battled the Confederate cavalry raiders to a draw, which was the first time the Union Cavalry hadn't gotten completely defeated in that type of engagement, which hugely boosted Union Cavalry morale & confidence going forward in the war:
https://en.wikipedia.org/wiki/Battle_of_Kelly%27s_Ford After the war he was given an honorary promotion after the fact to Brevet Major General in recognition for his performance at Kelly's Ford, but this wasn't a real rank.
 - Post-war politics: US Consul-General in British North America (the British territories in North America excluding the Caribbean and the parts of what is now Canada that had not yet joined the newly formed Dominion of Canada.) He served 1866-69.
 - Post-war Business Ventures (Paving) - quote from the Wikipedia article, sourced to the NYSL bio page linked below:
 - *Averell was also an entrepreneur and an inventor, working in the fields of coal, steel and eventually paving materials. His businesses and his inventions of practical devices provided him with a handsome income. Among his inventions were methods for manufacturing steel castings and insulated electrical cable, but he is best known for his work with asphalt pavement.*
- Biography from New York State Library system and their collection of his official papers: <http://www.nysl.nysed.gov/msscfa/sc12349.htm>
 - His early exile from the war more than half a year before it ended seems to have given him the jump on some of his peers from the Union Army in getting into the business world, because by June 1865 he had launched a coal & gas speculation company, but this effort failed early too, even if he would return to the petroleum industry later from a very different angle.

- This investment debacle prompted him to accept the diplomatic appointment in October 1866 to Montreal by (fellow Democrat) President Andrew Johnson. But he was relieved from this post when Republican President and former General Grant took office in the spring of 1869.
- *Undaunted by the abrupt end of his consular career, Averell turned his fall interest to various business endeavors. At first he delved into steel making, but then, however, a different mineral soon occupied his attention. In the Fall of 1870, Averell had become interested in asphalt, especially its uses for street pavements, despite problems he observed with pavement laid in New York City and Newark in an experimental basis according to patented procedures of Belgian engineer chemist Edward J. DeSmeldt. Bad as the pavement appeared, Averell nonetheless convinced of the potential of asphalt, if he could develop the right formula and method to lay it properly. Shortly thereafter, Averell assumed the presidency of the Grahamite Asphalt Pavement Company, where he began to analyze the DeSmeldt formula, the machinery used in laying the pavements, and the paving techniques. He then began a series of experiments to improve them. He developed better pavement laying techniques and culminated long years of effort and experimentation by being granted a United States Patent on 14 January 1878 entitled "Improvement in Asphaltic Pavement."*
- He then began lobbying state legislatures, municipal government machines, and the US Congress for the contracts to pave major streets or demonstration streets in northeastern cities and the District of Columbia.
 - *One prime contract received by Averell was for the repaving of Fifth Avenue in New York City. Since this required special action from the New York State Legislature, Averell spent much time in 1875 lobbying for the bill that failed passage mainly because of opposition encountered by the Tammany Hall bloc. As a result, work in New York was delayed for several years. Another major contract awarded to Averell in 1875 was in Washington, D.C. where a test strip of pavement was laid on Pennsylvania Avenue. This test was a tedious, tiresome round of dealing with Congress and the commissioners of the city.*
- From 1880 to 1898, he was involved in almost constant court battles and power struggles relating to his control of the asphalt patent.
- *Averell was also interested in the communication field, where he developed and perfected an asphaltic conduit for an underground electrical system for which he received a United States Patent on 21 July 1881. Deemed successful, this device brought Averell a high degree of recognition and respect from individuals like Thomas A. Edison. Another invention, a water (sonar) telephone was deemed to be impractical, though Thomas D. Conynhan of the Hazard Manufacturing Company was greatly interested in marketing it.*
- In 1888, with Democrats back in power in Washington for the first time since the Johnson years, Averell was given a special post with a steady income: Assistant Inspector General of Soldiers Homes, which he would serve as for 10 years, traveling around the country inspecting, reporting on, and lobbying for federal funds for soldiers homes, hospitals, and long-term care facilities for the veterans of the Civil War.
- He died childless in 1900. He and his wife left most of their money to two of his younger, married sisters.
- Competition with Amzi L. Barber, "The Asphalt King"
 - From the NYSL bio: *In 1880, Averell was charged with an infringement of patent rights by Edward J. DeSmeldt, claiming interference for seven patents issued*

between 1 March 1870 to 7 February 1871. The dispute was resolved within a year by a complicated settlement involving, as interested third parties, Amzi L. Barber and James McLain. The case was settled out of court by the creation through complex exchanges of stock and capital of the American Asphalt Pavement Company, and the patent action was set aside. The structure of the American Asphalt Pavement Company when incorporated under the laws of New York State, 21 April 1880 consisted of a board of directors that elected Averell as president and a three man executive committee that was headed by Amzi Barber. The executive committee was given full power to transact all business of the company. This arrangement made it inevitable that a conflict would arise, which it did within a year, between the two corporate heads. Questions of patents and royalties and other internal differences led Barber to organize the Barber Asphalt Paving Company. In 1883, Averell sued for infringement of his patent and won a judgment against the Barber Company. There were fifteen years of delays appeals and referee awards. Finally, in 1898 the appellate Division of the New York State Supreme Court upheld an award in Averell's favor for a total amount of \$700,000.

- Barber (https://en.wikipedia.org/wiki/Amzi_L._Barber) was a real estate developer of a gated whites-only suburb in the District of Columbia in the 1870s and became interested in the possibilities for asphalt street paving. After the failure of the arrangement with Averell around 1881, Barber formed his own asphalt paving company in 1883, immediately facing litigation from Averell. While this battled dragged on until 1898, Barber gained one specific advantage in 1887: a 42-year monopoly mining concession from the British government in their Federal Colony of the Windward Islands for access to Pitch Lake, Trinidad's massive asphalt deposit (https://en.wikipedia.org/wiki/Pitch_Lake), which even today has an estimated 10 million tons of asphalt. Unlike other famous tar pits where the focus has been on scientific research of trapped animals or people from prehistory, this tar pit is mostly for extractive use with some ancillary tourism. - *By 1900, [Barber] had laid over 12 million square yards of [Trinidad asphalt pavement](#) in 70 American cities at a cost of \$35 million.*^[5]
- **One thing I'm not sure about: Was Averell using asphalt mined in the northeastern United States or was he using asphalt mined in Trinidad up until this point? Two of his company names in the early 1870s were the "Grahamite and Trinidad Asphalt Company" and the "New York and Trinidad Asphalt Company"**
- Barber also later tried to go into the automobile industry... perhaps to generate more usage and demand for asphalt street paving?
- Also probably worth noting that Barber's wife's first cousin was married to Mark Twain
- What is asphalt paving?
 - <https://en.wikipedia.org/wiki/Asphalt#History>
 - Asphalt (also known as bitumen) is a petroleum by-product and one of the ones most commonly exploited in the ancient world before people could figure out how to use petroleum oil itself for much. This was what was bubbling up out of the ground in North America, as indigenous cultures had known for many centuries, eventually provoking the Pennsylvania Oil Rush beginning in 1859 and accelerating after the end of the Civil War.
 - In France in the 1830s, asphalt had become a huge fad for flat roofs, sealants, and (critically for our discussion today) paving. This quickly took off in England as

investors rushed to patent the exclusive domestic rights to the French technology and to arrange for the importation of French and German bitumen.

- There seems to have been a bit of a lag between the French and English wave of asphalt paving and the wave of US asphalt paving, perhaps because of the lateness of the oil rush starting and no doubt delayed further by the Civil War, but when it finally arrived the demand was substantial.
 - *In the horse-drawn era, US streets were mostly unpaved and covered with dirt or gravel. Especially where mud or trenching often made streets difficult to pass, pavements were sometimes made of diverse materials including wooden planks, cobble stones or other stone blocks, or bricks. Unpaved roads produced uneven wear and hazards for pedestrians. In the late 19th century with the rise of the popular [bicycle](#), bicycle clubs were important in pushing for more general pavement of streets.^[67] Advocacy for pavement increased in the early 20th century with the rise of the [automobile](#). Asphalt gradually became an ever more common method of paving.*
 - *Small towns continued to rely on dirt and gravel, but larger cities wanted much better streets. They looked to wood or granite blocks by the 1850s.^[69]*
 - *In 1890, a third of Chicago's 2000 miles of streets were paved, chiefly with wooden blocks, which gave better traction than mud. Brick surfacing was a good compromise, but even better was asphalt paving, which was easy to install and to cut through to get at sewers. With London and Paris serving as models, Washington laid 400,000 square yards of asphalt paving by 1882; it became the model for Buffalo, Philadelphia and elsewhere. By the end of the century, American cities boasted 30 million square yards of asphalt paving, well ahead of brick.^[70] The streets became faster and more dangerous so electric traffic lights were installed.*