William Barclay Parsons
A RENAISSANCE MAN OF OLD NEW YORK

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Chapter 1: A Renaissance Man

Few engineers had ever faced the kind of challenge that confronted William Barclay Parsons in 1894. Parsons was to oversee the planning, design and construction of a system of underground rapid transit for New York City. Known as the subway, the undertaking was one of the most ambitious public works projects in the history of the United States. Parsons was just 35 years of age when he was appointed Chief Engineer of New York’s Board of Rapid Transit Railroad Commissioners. Open skepticism greeted his appointment, and years later Parsons himself acknowledged, “Had I fully realized what was ahead of me, I do not think I could have attempted the work.” But, armed with “the enthusiasm of youth and inexperience,” he forged ahead, directing an army of men that built the initial segment of the subway in four and one-half years. He was proclaimed a civic hero when the subway opened on October 27, 1904.
The New York City subway was not Parsons’s only engineering triumph. He also designed the Cape Cod Canal and has dozens of other engineering projects to his credit. The engineering partnership he founded in 1885 lives on today as Parsons Brinckerhoff, an international planning, engineering and management company active on six continents.

But Parsons’s interests and accomplishments ranged far beyond engineering. When he was nearly 60 years old he left his engineering practice to serve in World War I. He was Chairman of the Board at Columbia University for many years and instrumental in the development of Columbia-Presbyterian Medical Center. He promoted groundbreaking research into ancient Maya civilization, wrote four books—including a major scholarly work on the history of engineering—and was a leading citizen of turn-of-the-century New York. With his range of interests, talents and accomplishments, he truly embodied the ideal of the Renaissance man.

As Chief Engineer of the subway from 1894-1904, Parsons laid out the general plan of the original system and oversaw its construction from 1900 to 1904. The nine-mile section of the subway that opened to great acclaim in 1904 was largely his work. He was responsible for designing other sections of the subway that opened between 1904 and 1908, and he also envisioned the basic outline of the system as it exists today. His work on the subway was universally praised. In an editorial, The New York Times wrote:

New York City will ever hold Mr. Parsons in high respect, not alone as an engineer, but as a gentleman who has established the fact that great public works may be carried to completion with clean hands and an unsullied reputation.²

As Chief Engineer of the Cape Cod Canal in Massachusetts, a project he completed between 1905 and 1914 with August Belmont (also his partner on the New York City subway), Parsons proved that a sea-level canal was feasible, after unsuccessfully advocating such a plan for the Panama Canal. Another project for which Parsons is noted is a 900-mile rail line he planned and surveyed in China in 1898-1899 through sections of the country where—according to Parsons—no foreigner had ever been seen. “That trip was attended by no small danger,” Parsons wrote several years later. “I had been confidently informed by both foreigners and Chinese that I could not get through, and that if I tried to force my way through, I would be killed.”³ But he successfully completed the survey in just two months and enjoyed generally cordial relations with the Chinese.

He twice volunteered for military duty, during the Spanish-American War of 1898 and again during World War I. Parsons was among the first U.S. soldiers to reach Europe, serving as a colonel in the legendary “fighting engineers” of the Eleventh Engi-
neers (Railway) of the U.S. Army. Following the war he was promoted to Brigadier General.

His books include an account of his railway work in China; a book about Robert Fulton and his invention of the submarine; a volume on American engineers in France during World War I; and *Engineers and Engineering in the Renaissance*, a 661-page tome that is a valuable addition to scholarship on engineering. In addition to the books Parsons wrote, he was instrumental in the publication of an account of his engineering regiment during World War I. His wartime experiences were also chronicled in *War Letters*, a privately published collection of letters that Parsons, his wife, son, daughter and future daughter-in-law exchanged during World War I. Parsons believed that his life and his contributions would matter, and he saw to it that his achievements and activities would be recorded for posterity.

Parsons was a leading voice of the engineering profession at the turn of the century, writing and speaking of the civil engineer’s place in society. “Of all human activities,” he said, “engineering is the one that enters most into our lives, that gives us our means of living, and permeates every fiber of the social fabric.” He argued forcefully that engineers should be more than narrow technical specialists and must concern themselves with advancing social and economic goals.

Engineering requires two abilities—first, the technical skill and second, the mind and the knowledge to conceive that which is useful and will be for the convenience of mankind in the long run.

Parsons had a strong sense of *noblesse oblige*, and, after establishing himself as a successful engineer, he devoted much of his time and energy to educational and cultural institutions. Following his return from World War I in 1919, he scaled back his engineering work considerably, preferring to concentrate on philanthropic activities, as well as writing, particularly his book on engineering during the Renaissance.

For 35 years, he was a member of the Board of Trustees of his alma mater, Columbia University, serving as Chairman from 1917 until his death in 1932. With longtime President Nicholas Murray Butler, he guided the development of Columbia from an undistinguished regional school to the internationally renowned institution it is today. He also played a major role in the development of Columbia-Presbyterian Medical Center. He was Chairman of a Joint Administrative Board of Columbia University and the Presbyterian Hospital that directed the building of the medical center, which opened in 1928 as one of the world’s great medical research and teaching institutions and is now known as New York-Presbyterian Hospital.

As a trustee of the Carnegie Institution of Washington, Parsons encouraged the Institution to conduct influential research into the ancient Mayan civilization of Mexico’s
Yucatan. He also served for 21 years as a trustee of The New York Public Library, was a vestryman and warden of Trinity Church in New York City, and a trustee of the public library of Middletown, New Jersey, where he had a vacation home in Locust.

A quietly forceful personality, Parsons was characterized by those who knew him as a polite, dignified patrician with an iron will and an ability to inspire confidence in others. “The men who work with him all believe in him thoroughly both as engineer and man,” wrote one journalist. Parsons’s letters, particularly those to his family, reveal a less formal, warmer dimension of his personality than the public record suggests, with compassion, a sense of humor, an intense interest in other cultures, and dedication to his family first and foremost—exhibited most strongly in letters he wrote from the front during World War I.

He was conservative politically, favoring private enterprise and deeply skeptical of government. Against progressive movements such as trade unionism and unemployment insurance, he once wrote that he was “opposed to all socialistic tendencies.” During a speech to graduates of the Library School of The New York Public Library, he inveighed against what he termed “The Revolt Against Constituted Authority,” arguing that “criticism and analysis leading to truth have given place to carping and uncontrolled antagonism.” Such challenges to established order, he said, extended even to “those realms that should be above interference—art, music and literature—the first is threatened with cubist designs, the second with jazz, and the last with every conceivable horror.”

He had a strong adherence to traditional Christian values and a deep sense of patriotism. As Columbia’s Chairman, he regularly battled professors he viewed as radical or subversive. Despite his admiration for British culture, support of American imperialism, and prejudices common to his time, he showed a deep respect—at least according to the standards of the day—for other cultures, most notably ancient Chinese and Mayan civilizations. He had a strong belief in what he called “the necessity of accomplishment” and attributed his achievements to his willingness to work long hours. “I have failed utterly to discover any substitute for hard work,” he said. “I have found nothing to take the place of midnight oil. I am at a loss to know how to succeed except by plugging.” Above all he believed in the importance of acting responsibly and with a sense of the consequences of one’s actions.

Every act we commit, no matter how trifling, and every word we speak has some effect for good or evil, and what we do or say is done or said for all time.

The life of William Barclay Parsons is testament to that belief.
**Significant Dates in the Life of William Barclay Parsons**

1859: Born in New York City on April 15.

1870: Moves to Europe with his family.

1875: Returns to New York City with his family.

1879: Graduates from Columbia College.

1882: Graduates from the Columbia School of Mines.


1884: Marries Anna DeWitt Reed on May 20.

1885: Establishes an engineering practice in New York City with his brother, Harry de Berkeley Parsons.

1891: Named Deputy Chief Engineer of the Board of Rapid Transit Commissioners.

1894: Named Chief Engineer of the Board of Rapid Transit Railroad Commissioners.

1897: Appointed to the Board of Trustees of Columbia University.

1898: Serves as Chief of Engineers, with the rank of Brigadier General, in the National Guard of New York.

1898-1899: Charts the course of a railway from Hankow (Wuhan) to Canton (Guangzhou), China.

1900: *An American Engineer in China* is published.

1900: Construction of New York City subway begins with groundbreaking on March 24.

1904: New York City subway opens on October 27.

1904: Appointed to first Isthmian (Panama) Canal Commission.

1904: Resigns as Chief Engineer of the Board of Rapid Transit Railroad Commissioners on December 31.

1905: Named Chief Engineer of the Cape Cod Canal.

1905: Appointed to the Board of Consulting Engineers for the Panama Canal.
1907: Becomes a member of the Board of Trustees of the Carnegie Institution of Washington.

1911: Becomes a Trustee of The New York Public Library.

1914: Cape Cod Canal is dedicated on July 29.

1917: Elected Chairman of the Board of Trustees of Columbia University.

1917-1919: Serves with the Eleventh Engineers of the U.S. Army in France.

1920: *The American Engineers in France* is published.

1922: Named Brigadier General of the U.S. Army.

1922: *Robert Fulton and the Submarine* is published.

1924: Becomes Chairman of the Joint Administrative Board of Columbia University and the Presbyterian Hospital.

1928: Columbia-Presbyterian Medical Center is dedicated on October 12.

1932: Dies in New York City on May 9.

1939: *Engineers and Engineering in the Renaissance* is published.
Chapter 2: The Early Years

William Barclay Parsons, Jr. was born on April 15, 1859, in New York City, the son of William Barclay Parsons, who owned a chemical import firm, and the former Eliza Glass Livingston. The family, which included brothers Schuyler, Harry and George, lived on Bleecker Street in Manhattan.

Descended on both sides from prominent families with colonial ties, his ancestors on the paternal side included Col. Thomas Barclay, a Tory during the Revolutionary War who was appointed British Consul General for New York after the Revolutionary War, and Dr. Henry Barclay, the second rector of the venerable Trinity Church near Wall Street. His paternal grandfather was an officer of the British navy who was shipwrecked off the coast of Long Island during the War of 1812, released from prison after the war, and settled in New York City. His mother’s family was descended from Robert Livingston, who emigrated from Scotland in 1673, and Robert R. Livingston, who was a member of the committee that drafted the Declaration of Independence.

‘Parsons’ forebears lost most of their political clout when independence severed their ties with the mother country, but they continued to identify closely with Great Britain throughout the nineteenth century as a way of underscoring their elite social status,” according to historian Clifton Hood.\(^1\)

Parsons was raised to be a member of the New York aristocracy. In 1870, his family moved to Europe. Parsons went to school in Torquay, England, and also studied under private tutors, receiving an education grounded in the classics, including Greek and Latin, while traveling with his family in France, Germany and Italy. “On this grand tour Parsons formed a lasting admiration for the British upper class as an aristocracy of lofty birth and solid achievement,” according to Hood.\(^2\)
Columbia College and the School of Mines

In 1875, the Parsons family returned to New York and lived in a brownstone at 505 Fifth Avenue. Parsons entered Columbia College, where he was an active, accomplished student, with a strong interest in sports. He rowed crew, received debating prizes from the Philolexia Society, was a member of the tug-of-war team, won election as class president, co-founded and served as sports editor of the student newspaper, *The Spectator*, and was president of the College Athletic Association. Even then, he was a leader, according to a profile of Parsons by Arthur Goodrich published in *The World’s Work* in 1903:

> Columbia men of that time still tell the story of how young Parsons, in an open eight-oared race on the Harlem River, pulled the Columbia crew together after an accident had put them behind, and with indomitable pluck stroked them almost to victory against impossible odds.3

Parsons was popular with his classmates but earned the nickname, “Reverend Parsons,” apparently for his somber appearance and seriousness of purpose. But he also had a rebellious streak. In 1876 he was called before the faculty “for making a disturbance on the college grounds” and a year later was threatened with expulsion for the “first infringement of the rule prohibiting conversation during chapel services.”4

He was graduated, with 35 others, in 1879 with a bachelor of arts degree and then entered Columbia’s School of Mines, from which he was graduated with a degree in civil engineering in 1882, earning “the highest general percentage in scholarship on record in the institution,” according to Goodrich.5

During the summer of 1881, preceding his final year at the School of Mines, Parsons took a job as an assistant engineer with the Blossburg Coal Company in Arnot, Pennsylvania. Even at that early stage of his career, he excelled, giving “entire satisfaction,” according to a recommendation written by the company’s general manager, S. B. Elliott:

> In the performance of his labors he has been compelled to survey over thirteen miles of tortuous underground in our coal mines as well as transit and other work in construction…and in every case has shown himself competent, reliable, and faithful.6

From the beginning of his career Parsons was not only an engineer but also a writer. He drew on his brief experience at the Blossburg Mine to produce a paper, *Endless-Rope Haulage*, which was published in 1882 and described a system for hauling coal designed by Elliott and Parsons.
The Early Years

The Erie Railroad

Parsons’s ambition and high self-regard were also apparent early on, as when he asked to take his final exams two weeks before the rest of his class so that he could take a job with the New York, Lake Erie and Western Railroad (the Erie Railroad) that required him to start before graduation. He wrote:

Now in view of my seven years course in this institution and especially of my standing during the last three of those years as a student of the School of Mines, I respectfully petition your honorable body to accept these examinations, in place of the regular examinations, for the degree of Civil Engineer.7

Parsons’s request was granted, and he joined the maintenance-of-way department of the Erie Railroad, initially in Port Jervis, New York. The following year, he was promoted to Road Master of the railroad’s Susquehanna Division, and in June 1884 was put in charge of the reconstruction of the Greenwood Lake Railway. Within three years, he had attained the rank of Division Engineer.

A letter written in 1883 by Parsons’s father to his son’s supervisor at the Erie Railroad, thanking him for his son’s transfer to a new assignment, gives a sense of the young Parsons’s dutifulness. Writing of his son, the elder Parsons claimed:

…during his twenty four years of life, he has never given me, an anxious, watchful parent, one single cause of complaint… I know he is good through and through, capable, highly educated professionally and otherwise, full of ability, energy, industry and integrity…Work him, but pray keep him in sight.8

In reply, Parsons’s supervisor wrote:

The young gentleman is all that can be desired, and will by his industry and faithfulness force himself to advancement.9

During his son’s stint with the Erie Railroad, Parsons’s father paid him a visit. The young engineer took his father on a trip over the Rochester Division of the railroad, which the younger Parsons was in charge of reconstructing. Goodrich gave the following account of their trip, claiming that it revealed Parsons’s deep sense of “calmness and self-possession.”

Mr. Parsons, Sr., accompanied his son on a trip over the division, and when the young supervisor told him about the bad condition of the track, he said frankly that he thought it remarkably smooth and solid.

‘Oh, but this is the part I have rebuilt,’ his son explained. ‘We’ll come to the end of it in a minute and then you’ll notice the difference.’

Before his father had time to reply, the train was thrown from the track by the
breaking of a driving-wheel of the locomotive and landed upside down at the bottom of a fourteen-foot embankment. Father and son found themselves seated opposite each other, unhurt, on the ceiling of the car.

‘There, what did I tell you?’ remarked the young Parsons quietly.

‘Yes, son, it is rougher,’ his father admitted readily.10

Parsons drew on the experience he gained during his three years (1882 to 1885) with the Erie Railroad to publish two small technical manuals, *Turnouts: Exact Formulae for Their Determination*, published in 1884, and *Track: A Complete Manual of Maintenance of Way*, published in 1886. Both were straightforward technical works, but the young Parsons had established a precedent of recording his contributions that would continue throughout his life. He sent a copy of *Track* to one of his Columbia professors, F.R. Hutton, who told the young engineer:

> There is something very gratifying to a teaching engineer to have a graduate whose nose he helped hold to the stone, come out as a leader of practice in his specialty as you have done, and I use your success to point a variety of morals and adorn several and sundry tales to our young men of today as to what may come about for brains and diligence in the use of opportunities.11

That episode was typical of Parsons’s astuteness in cultivating mentors. From the beginning of his career he developed relationships with influential men who became his patrons and partners. Upon his appointment as Road Master at the Erie Railroad, Parsons received a congratulatory letter from Abram S. Hewitt, then a congressman and later to become mayor of New York and influential in the development of the New York City subway. Three years later, in 1887, Hewitt, then mayor, singled out Parsons as the leading expert about designing a subway. During his life Parsons also formed close relationships with such influential men as August Belmont, his partner in building the New York City subway and Cape Cod Canal; Nicholas Murray Butler, the longtime president of Columbia University and Parsons’s partner in overseeing that institution as its chairman for 15 years; and Seth Low, Butler’s predecessor as president of Columbia and mayor of New York in 1902-03, during the construction of the subway.

**Back to New York**

On May 20, 1884, Parsons, then 25, married Anna DeWitt Reed of New York, also a descendant of a colonial family. The couple would have two children, William Barclay, born in 1888, who would become a surgeon and professor at Columbia University’s College of Physicians and Surgeons, and Sylvia, born in 1885, who moved to Boston after her 1908 marriage to Rudolph Weld, a member of a prominent Boston family.

Anna Parsons was active in society, noted for giving “charming entertainments.”
The Early Years

But she was also a formidable woman in her own right, traveling with Parsons to China and accompanying her husband, son and future daughter-in-law to France during World War I, where she volunteered with the American Red Cross and organized an orphanage at Etretat. She also supervised the completion of Parsons’s book, *Engineers and Engineering in the Renaissance*, following his death in 1932. The book was published posthumously in 1939.

Encouraged by his brother-in-law, S.A. Reed, who was also an engineer, Parsons, then 26, and his younger brother, Harry de Berkeley Parsons, 23, established an engineering consulting practice at 22 William Street in downtown Manhattan in 1885. The brothers’ listing in the phone book of the time reads as follows:

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Broad 1226—Parsons, W.B. and H. de B.
Consulting Engineers, 22 William Street
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From the beginning, however, William Barclay Parsons was the dominant force in the business. An item in *Engineering News* and *American Contract Journal* of October 24, 1885, mentioned only William and stated that “his extensive experience, together with a reputation secured by the authorship of *Turnouts* and *Track*, will place him in the front rank of the profession in this city.”

**Early Work**

William Barclay and Harry de Berkeley Parsons worked on a number of projects, including railroads, water systems and hydroelectric plants, and they frequently acted as consultants to banks that had an interest in infrastructure projects. Among their assignments were the water works of several communities, including those in Vicksburg and Natchez, Mississippi, and the construction of railroads in New York, Pennsylvania, Maine, Ohio, Illinois, Colorado and Texas. They were consulting engineers for the first railroad in Jamaica and advised prominent railroad companies in Baltimore, St. Louis, San Francisco and Long Island. In October of 1886 William Barclay Parsons left New York for Texas to serve as Chief Engineer of the Fort Worth and Rio Grande Railroad. In 1887, he became Chief Engineer and General Manager of the Denver Railroad, Land & Coal Co. Although he traveled extensively during this time, Parsons kept abreast of the effort to develop a system of rapid transit in New York City. He wrote:

> During these years [I] was engaged in various private practice in railroad and other engineering work in different parts of the country, but never absent for any length of time from New York, or accepting any assignment that would permanently take me away from New York, in order to keep in touch with the rapid transit problem, which I believed would eventually come to pass.
Parsons would gain his greatest renown as a transportation engineer by virtue of his work on the New York City subway, but he also had considerable success with hydroelectric plants, a technology in its infancy in the early years of the 20th century. On behalf of the New York Power and Light Corporation, he and his brother designed the 100,000-horsepower Spier Falls powerhouse and dam on the Hudson River near Glens Falls, New York. The $3 million plant, which began operating in 1903, was considered “one of the classic examples of gravity dam structures,” according to an account of Parsons’s career written by his partners.15

Harry de Berkeley Parsons was a respected and accomplished engineer, although he never attained the stature of his older brother. Perhaps his most notable achievement was his design of the Sherman Island powerhouse and dam in upper New York State, for which he served as consulting engineer in the early 1920s. He also designed a reptile house for the Bronx Zoo, supervised foundation work for the Cathedral of St. John the Divine in Manhattan and was consulting engineer to the New York Zoological Society. He was a professor of steam engineering at the Rensselaer Polytechnic Institute in Troy, New York, from 1892 to 1907, and emeritus professor of practical engineering from 1907 until his death in 1935. Although the Parsons brothers collaborated on projects until the early 1920s, Harry eventually left the partnership, although precisely when is not clear.

The New York City Subway

Despite the diverse range of projects on which the Parsons brothers worked, from his first days in practice in New York, the idea of underground rapid transit—a subway—
captivated William Barclay Parsons. During the early 1880s, he was a staff engineer to the New York Arcade Railway Company, which proposed to build a subway from the Battery to the Harlem River. Parsons and others split from the Arcade Railway Company to form a rival concern, the New York District Railway Company, for which Parsons mapped a route and prepared a plan for ventilation. The District Railway was ultimately replaced by the City Railway Company, “and it, in turn, went no further than Mr. Parsons’s plans,” according to Goodrich’s article in *The World’s Work*.16

The New York District Railway appealed to the courts when the city’s Board of Aldermen refused to grant it a franchise. Ultimately the Court of Appeals sided with the city, and that decision, in 1886, “ended the efforts of the Arcade Railway and the District Railway to build a subway in Broadway,” Parsons told historian James Blaine Walker.17

In a 1904 letter to his friend Nicholas Murray Butler, Parsons reflected further on the frustrating delays in moving ahead with the subway and his refusal to quit the project:

During 1896 and 1897, the action of the Supreme Court, and afterwards of the City administration, seemed to put a permanent veto on rapid transit progress, and many of my friends had urged me to withdraw from the work previous to this and at that time, on the ground that failure was the only thing in sight, and that I was already passing the time of life when a man should begin to get some reputation if he were to finally succeed. I determined, however, to remain with the project…although I realized that my whole success in life was at stake.18

While he waited for action, Parsons used the time to thoroughly acquaint himself with the Herculean task that awaited him. “Through all this succession of failures [Parsons] was learning all about every foot of land on Manhattan Island and the foundation was being laid for his achievement [of designing the New York City subway],” wrote Goodrich.19

The New York City subway was to be his life’s work, but it would be many more years before Parsons’s dream of designing a rapid transit system for New York would finally be realized. In the meantime, two other developments interrupted Parsons’s involvement in the subway.

First, the short-lived Spanish-American War broke out in April 1898. Parsons volunteered for service in the First United States Volunteer Engineers, receiving a commission as Captain. Shortly afterward, he was appointed Chief of Engineers of the New York National Guard, with the rank of Brigadier General. He commanded a regiment in Peekskill, New York, to which he taught principles of military engineering.

Following the cessation of hostilities in July 1898, Parsons accepted an assignment to survey the route of a planned railroad from Hankow (now known as Wuhan) to Canton (now Guangzhou), on behalf of the American China Development Company, which had the backing of American financiers J.P. Morgan and August Belmont.
as well as Belgian interests. Parsons sailed for China on October 14, 1898, and com-
pleted the work by February 1899. That same month, New York’s Board of Rapid
Transit Railroad Commissioners awarded a contract for the building of the subway
and summoned Parsons back to New York to oversee the construction of his vision of
rapid transit in New York City.
Chapter 3: Planning the New York Subway

New York in the latter half of the 19th century was extremely congested and experiencing dramatic population growth, much of it from immigration. Sections of the Lower East Side had some of the highest population densities in the world. The system of elevated steam-powered trains and horse-drawn and cable-powered ground transportation was clearly inadequate to meet the demands of the growing city.

There was widespread opinion that underground rapid transit was at least a part of the answer to New York City’s transportation problem, but there were also powerful interests—including the notoriously corrupt Tammany Hall political machine, certain property owners, and the operators of the city’s elevated railroads—that were adamantly opposed to underground rapid transit, for various reasons. Business interests, led by the Chamber of Commerce, favored rapid transit to get workers to and from their jobs, and to stimulate commerce. Social reformers wanted transportation that would allow residents of the teeming tenement districts of Manhattan’s Lower East Side to move to less crowded, more wholesome environments uptown and in the Bronx. Real estate interests advocated for the development opportunities that new rapid transit lines would provide. Residents of the city and commuters simply wanted transportation that was faster, cleaner and more pleasant than inching along traffic in a horse-drawn carriage or on an elevated railway that was somewhat faster although not much more pleasant, either for the traveler or those who lived alongside or walked under the “els.”

The Steinway Commission

In 1891, the New York State legislature passed the Rapid Transit Act, which, as amended, allowed cities to use their own capital for construction and created a Board of Rapid Transit Commissioners headed by William Steinway (of the Steinway & Sons piano manufacturer) and known as the Steinway Commission. William E. Worthen was appointed Chief Engineer and the 32-year-old Parsons was appointed Deputy Chief Engineer. The two men quickly prepared plans for an underground railway along Broadway.

Early on it was assumed that the subway would be built close to the surface, rather than in deep underground tunnels, but Worthen and Parsons disagreed on whether the four tracks of the subway should be on one level, as Worthen recommended, or in a double deck, with local tracks on the upper deck and express trains on the lower level, as Parsons favored, although he later switched his preference to a four-track system on a single level. Parsons also advocated for “pipe galleries” between the up-
town and downtown tracks that would contain the lines of various utilities that would have to be relocated during construction, as well as pipes to be laid in the future. Parsons ultimately lost on that point as well.

The commission’s assumption was that electric power would probably be the means of locomotion in the subway, although electricity was a technology in its infancy and the commissioners did not exclude other means of motive power.

The Steinway Commission solicited bids for its plans in the fall of 1892, but only one bid was received, and that for the preposterous sum of $1,000. The commission rejected the bid and turned its efforts toward the extension of elevated railroads, but without success. After failing to obtain a bid for the subway, the Commission dismissed all of its employees but 30 days later rehired all except Parsons, who explained what happened next during a 1913 interview with historian James Blaine Walker:

The Board then offered the elevated railroads rights for important extensions. Having failed to enlist capital for an underground road, the Board did what was expected of it and made elaborate plans for extending the elevated railroads. Then another strange event happened. The elevated railroad interests, then dominated by Jay Gould, and Russell Sage, refused to build the extensions offered. They felt so secure in their monopoly that they actually scorned the gift the Board would make them. That ended the Board of 1891. Having failed to build either subway or elevated lines there was nothing more for it to do.¹

The Steinway Commission did not accomplish its mission, but the engineering of Worthen and Parsons was used by a successor board. “The studies made by the engineering staff under the direction of William Barclay Parsons were of the greatest value to the next Board,” according to a history prepared for the Chamber of Commerce by S.D.V. Burr in 1906. “The examinations made by him furnished accurate data with regard to the nature of the material through which a subway would have to pass.”²

The Steinway Commission was replaced by the Rapid Transit Act of 1894, which created a new Board of Rapid Transit Railroad Commissioners led by Alexander E. Orr, a respected civic leader, as Chairman, and including Steinway and Seth Low, the President of Columbia University, later to become Mayor of New York. The board created by the 1894 legislation was empowered to oversee the development of a rapid transit system and immediately set about its work, naming Parsons as Chief Engineer.

“He was only thirty-five years old when he became Engineer-in-Chief to the Commission, and many veterans of the profession said openly that his appointment was a mistake,” wrote journalist Arthur Goodrich in The World’s Work. “But the Commission wanted a young man—no one but a young man could possibly complete the inevitably immense plan they were beginning—and no engineer seemed to know the ground or to have such thoroughly practical plans as Mr. Parsons. And he
impressed them, as he had his college mates, with an instinctive belief in his leadership.” Nearly 20 years later, Parsons reflected on his appointment:

When I look back now I am glad I was not older. I doubt if I could now undertake or would undertake such a work under similar conditions. But I had the enthusiasm of youth and inexperience. Had I fully realized all that was ahead of me, I do not think I could have attempted the work. As it was I was treated as a visionary. Some of my friends spoke pitifully of my wasting time on what they considered a dream.

The Rapid Transit Commissioners had complete confidence in Parsons. “From the outset the Chief Engineer’s role in the Commission was not limited to the background position of a strictly technical advisor,” wrote historian Wallace B. Katz. “As was consistent with his own vision of the engineer’s comprehensive responsibilities, Parsons had a hand in all of the [Commission’s] major decisions, and was often its able and articulate spokesman.”

Parsons’s engineers, too, put their faith in him. They “believed in him thoroughly both as engineer and man,” according to Goodrich, who described a visit to Parsons’s office in 1903:

Go out through his offices and you will find room after room of hard-working engineers and draughtsmen, organized carefully and having splendid esprit de corps. These men work out the plans he [Parsons] creates. He does not allow himself to be swallowed up in detail, but often as he looks over the detailed plans he will put his finger upon many little flaws that have passed by the men who have made them. He checks the work carefully.

Goodrich quoted one of Parsons’s engineers as claiming there had “never been the slightest friction or jar in the entire force.”

One of the Board of Rapid Transit Railroad Commissioners’ first acts, in July of 1894, was to send Parsons to Europe to study the great rapid transit systems there. Parsons reviewed the underground railways of London, Glasgow, Liverpool and Paris. He had previously inspected Berlin’s Stadtbahn and also included in his report a discussion of the Baltimore Belt Railroad and Chicago’s Intramural Railway, the latter because of its “successful operation by electricity.” In his report, dated November 20, 1894, Parsons did not make recommendations but simply reported on the methods of construction and operation he observed. Nonetheless, his preference for cut-and-cover as the construction method and electricity as the motive power was clear. He wrote of the “extremely offensive” air in the tunnels of some of London’s underground railways, through which coal-fired steam locomotives were run, “discharging the products of combustion directly into the tunnel.” He pointed out that a shallow tunnel would cost about one-eighth as much as a deep tube. He was impressed by the Chicago Intramural Railway, “the only electrically worked railway in
the United States where full trains were run in a regular service.”

The New York Times summarized Parsons's report: “The conclusion of Engineer Parsons...from his European observations, seems to be that an underground railroad, as near as practicable to the surface and operated by electricity, is the feasible and desirable thing for rapid transit in this city.”

The question of public versus private ownership was one of the key issues to be decided in building a system of underground rapid transit. Parsons was a strong proponent of private ownership, construction and operation. “Personally I have always leaned towards private ownership. I am opposed to all socialistic tendencies,” he wrote to the board’s counsel, Edward M. Shepard, in February 1899.

It seems to me that the function of a government is to govern, and not to manufacture gas, operate railways or do other things which are the function of private corporations...Private ownership, with a portion of the earnings accruing to the city in lieu of taxes, and in compensation for the franchise rights, was my preference.

The board, however, opted for public ownership and private construction and operation of the subway (as a former mayor, Abram Hewitt, had advocated as early as 1873), and the public concurred. In a referendum in November 1894, by a three-to-one margin, the voters expressed their wish for the city to finance and own the subway, as opposed to awarding a franchise to a private corporation, as Parsons favored.

In December 1894, Parsons prepared another report for the board, in which he argued for a route under Elm Street (now Lafayette Street) instead of Broadway, as proposed by the 1891 board. Parsons believed a Broadway route would exceed by some $15 million the debt limit of $50 million established by the Rapid Transit Act of 1894 and he was also concerned about the greater difficulty of construction along Broadway, a much more developed street than Elm.

The board opted to refer Parsons's report to a panel of engineering experts, which sided with the Chief Engineer. Ultimately, after concluding that the courts would not approve a Broadway route because of the additional expense and objections from property owners, the board decided on an Elm Street route in early 1897.

The 21-mile route approved by the board was to begin at City Hall and follow Elm Street (Lafayette Street), Fourth Avenue and Park Avenue north to 42nd Street, where it would turn west to Times Square and then follow Broadway north to the Kingsbridge section of the Bronx (a distance of 13.5 miles). Above 96th Street, a second line, 7 miles long, would extend east under Central Park, Lenox Avenue and the Harlem River to the Bronx, ending at the Bronx Park (now the site of the Bronx Zoo and New York Botanical Garden).

Various legal, political and financial obstacles continued to dog the project during 1897 and 1898. Meanwhile, Parsons accepted an assignment on the other side of
the world, leaving New York in October 1898 to plan the course of a railway in China. Before leaving for China, Parsons signed the contract drawings and left them with his brother and business partner, Harry de Berkeley Parsons. In a letter to Edward Shepard, Parsons assured the board counsel that he would “come home if so ordered” but expressed confidence that his presence wouldn’t be required before his planned return date of May 30, 1899. Parsons also considered the possibility that the Rapid Transit Commission could be dissolved. In such an event, he implored Shepard if possible not to give the plans to the city authorities. “Those plans are a part of myself, and I should like to keep them,” he told Shepard.11

Parsons returned to New York from China in June 1899, but the project remained in legal and political limbo until autumn of that year, when the city’s Corporation Counsel finally approved the proposed contract, and the courts ruled on the final remaining legal question (the size of the bond to be posted to guarantee the work). A contract for building the subway was advertised in November 1899. At last, the realization of underground rapid transit in New York seemed within reach.
Chapter 4: Adventures in China

In the fall of 1898, as he awaited the fate of a rapid transit system for New York City, Parsons set sail for China to chart the course of a railroad from Hankow (now known as Wuhan) to Canton (now Guangzhou), a distance of some 900 miles. Although it was essentially an engineering assignment, Parsons also regarded it as an opportunity to observe and write about Chinese culture and civilization, and to advocate for continued Western development of China.

As he did for much of his life, Parsons resolved to record his experience for posterity. He wrote about his travels in China in a series of articles published in 1900 for *Harper's Weekly, McClure's Magazine, The Engineering Magazine, The Popular Science Monthly* and *National Geographic*. Those articles served as the basis for his book, *An American Engineer in China*, also published in 1900, which curiously has relatively little about the actual work that Parsons and his crew undertook, and instead focuses largely on Parsons's impressions of China, both past and present, and his predictions, which proved prescient, for how China would develop in the 20th century.

Parsons had a deep interest in China (“the most fascinating quarter of our globe”) even before accepting the railroad assignment. As a young engineer considering a possible job on a railroad in Virginia, he was attracted to the area’s proximity to Washington, D.C., which he thought might “bring him into acquaintance with the Chinese Minister.” He declined the Virginia job, and years later recalled that his desire to meet the minister “was to be realized, not by accepting but by refusing the proffered post.”

The course of his career eventually afforded him the opportunity to become chief engineer of an American syndicate that on April 14, 1898, signed an agreement with H.E. Wu Ting-fang, the Chinese Minister representing the Imperial government, to build, equip and operate a rail line from Hankow, an industrial city often called “the Chicago of China,” to Canton, a seaport on the southern coast, near Hong Kong.

The proposed route of the Canton-Hankow railway lay through the provinces of Hupeh (Hubei) where “foreigners were well known and could travel at will,” Hunan—then fiercely xenophobic—and Kwangtung (Guangdong) which was reasonably hospitable to foreigners, according to Parsons.

Beginning in Wuchang, just south of Hankow, the route proceeded southward, following first the Yangtze and then the Siang River to a point about midway through Hunan province, where the Siang veers west. The route then follows the Lei River, a tributary of the Siang, crosses the Nanling mountain range and follows the Wei and Pei rivers to Canton.
At that time, railroads in China were in their infancy. Construction of the first rail line in China began in 1881 and by 1898 there were only about 800 miles of line in operation, with another 6,000 miles under construction or in various stages of development, concessions having been granted to the Germans, Belgians, British and Italians. The concession granted to the American China Development Company was the first to an American concern, and in Parsons’s view represented a significant milestone in the expansion of U.S. commercial influence abroad. He said that with the exception of Canada and Mexico, it was “the first time in which American capital has considered an investment in a large enterprise wholly on foreign soil.”

In any case, the enterprise certainly had adequate financial backing. Among the syndicate’s board of directors were J.P. Morgan, August Belmont (also the financier of the New York City subway and Parsons’s partner in that endeavor) and Parsons himself. Initially, all of the stock of the company was held by Americans, but eventually, a syndicate controlled by King Leopold of Belgium acquired a majority of the shares.

Parsons pointed out that the proposed organization of the railroad was much the same as that planned for the New York City subway—a private concern would design, build and oper-
ate the infrastructure for a specified period of time before returning it to the sponsoring government agency, in one case the government of China and in the other the City of New York.

**The Survey Begins**

Parsons left New York for China on October 14, 1898, along with his wife, son, daughter, and mother-in-law, as well as his surveying party. They reached Shanghai on November 14, and, after a stop for provisions, traveled to Hankow. Parsons's family returned to Shanghai and then traveled to Canton, where Parsons met them at the conclusion of his work and returned with them to Shanghai. Parsons and his party of about 10 engineers left Hankow on December 10 and successfully completed the survey two months later. He described the obstacles that faced them:

> On arrival in China, the political situation had been very much disturbed by the Empress Dowager having executed a *coup d'état*, and the interior of the Kingdom was very much upset. The local Commissioners of Shanghai, as well as the foreigners, were particularly averse to my going, as telegrams from officials in the interior positively forbade any foreigner visiting the district lying between Hankow and Canton, a large part of which had never been traversed by a foreigner.\(^5\)

*Parsons (center) and his surveying party.*

Parsons's surveying party was modest, but his entire retinue was huge. His “procession,” as he called it, consisted of 500 to 600 soldiers, bureaucrats and laborers, and stretched five miles from beginning to end. Parsons's entourage was announced by signs posted in the towns he would visit, and men or boys bearing placards announcing
the purpose of the foreign party led the procession. Parsons, as was the custom at the time, traveled in a chair borne by several laborers, although he claimed that for much of the time, he would have preferred to walk. Parsons’s party was certainly noticed. In his book, *An American Engineer in China*, Parsons tells a story of how his procession once competed for attention with an elaborate funeral procession of a local official.

It was very hard on the town that two such shows, a mandarin’s funeral and the first foreigner, should both be playing at the same time. For a moment the crowd hesitated, but only for a moment! That [deceased] mandarin had his paid placard-bearers and his fire-crackers but otherwise went to his grave unmourned and unsung. I had the crowd.6

The Chinese were intensely interested in the first foreigners many of them had ever seen. “At stopping places we were immediately surrounded by curious natives, on whose faces every human sentiment, from wonderment to fear, or even hatred, was depicted.”7

Parsons’s party managed to introduce some Chinese to foreign customs. He recounts a story of his party’s Christmas celebration in a small town called Ping-shui. No doubt homesick, they had a traditional Christmas celebration, complete with caroling and English plum pudding.

Our actions, our songs, our very food, but above all, our forks and knives, were a source of inexplicable astonishment to the people; but when our plum pudding—a thoughtful gift of an English lady in Hankow—appeared, decorated with holly and blazing in true Yule-tide style, a look of terror appeared on their faces.8

That was nothing, however, compared to the crowd’s reaction to the flash explosion when a photograph was taken of the celebration, whereupon the crowd of local people scattered. Parsons wrote:

Probably the natives of Ping-shui stoutly maintain to-day that ‘foreign devils’ are huge men with beards, who feed on uncooked meat which they tear to pieces with short swords and spears, and which excites them to such a degree that they shout loud and often, and in the midst of their excitement eat flames.9

**The ‘Closed Province’ of Hunan**

The challenges that awaited Parsons were considerable, nowhere more so than in Hunan, the so-called “closed province,” which his party entered on December 24. China at the time was in a period of turmoil, with considerable resentment of foreign influence and the bloody Boxer Rebellion less than a year in the future. Prior to Parsons’s arrival the dowager empress, Cixi, had executed a *coup d’etat*, beheading some of her
opponents and installing like-minded ministers and governors, including the conservative Yu Lien-san as governor of Hunan province. Parsons considered Yu a man “of high character and attainments from a Chinese point of view,” but one who was determined to thwart the modernization of China. Yu opposed the American expedition, “even to the extent of sending word forbidding the foreigners to enter his province.”

In his report to his superiors at the American China Development Company, Parsons writes that upon arriving in Shanghai, he “was confronted with a totally unexpected condition of affairs” as a result of the coup and “a decided disinclination on the part of officials to allow the party to pass through the province of Hunan.”

The Imperial Director-General of Railways, Sheng Ta-jen, agreed that the Hunan route was best but urged Parsons to survey through the province of Kiang-si, to the east of Hunan, while he attempted to persuade Hunan officials to permit a survey in that province. Parsons, however, refused, and ultimately he and Sheng went to Hankow to negotiate with Imperial officials there, who eventually issued an order to the Governor of Hunan directing him to allow Parsons’s party to enter his province and provide it with necessary protection. Parsons writes that during these negotiations, he learned that the prevailing wisdom was that the journey would be “one of great difficulty in execution on account of the hostile feeling against all foreigners, and even against other Chinese not belonging to Hunan.” In his report to the American China Development Company, Parsons writes that “for fully 500 miles of the territory covered no white man had ever been seen before.”

In a letter to his friend Edward M. Shepard, Parsons wrote that he earned the cooperation of Chinese officials once they discovered “that I was not be to thwarted or diverted, that I spoke the truth, and intended to be just.”
Prior to beginning his survey, Parsons doubled his supply of ammunition but later acknowledged that the trip proved to be “practically without incident,” except for an altercation between Parsons and the townspeople of the small village Wu-ni-pu in southern Hunan. Having become inured to cries of “foreign devil,” believing the epithet to be no more derogatory than terms such as “Yankee” or “Chinaman,” Parsons one day detached himself from his usual entourage of soldiers and servants and passed through the weekly market at Wu-ni-pu with only three unarmed soldiers and his chair bearers accompanying him. His presence quickly drew a crowd, whereupon, according to Parsons, “a boy in jest started the cry of foreign devil” and others in the crowd joined “in similar vein with laughter.” Those in the back of the crowd took up the chant and pushed forward, and eventually someone threw something at Parsons, whereupon “a quiet crowd unconsciously and quite unintentionally was converted into a mob” and began throwing clods of earth “with energy and zeal.” Parsons’s guard urged him to flee, but “to run I realized would encourage the violence and invite stumbling, which would be fatal, as likewise a proposition to take refuge in a little temple at hand.” Parsons stood his ground, protecting his head with the collar of his coat and hoping “that the crowd would not find any stones or bricks.” Eventually, “a somewhat mauvais quart d’heure order supplanted violence, and I was none the worse except for some dirty clothes and stiff neck,” Parsons wrote, but added that after that incident, “we went armed.”

Parsons Reports on the Work

Remarkably, in his book and in his report to the American China Development Company, Parsons says very little about the surveying or engineering challenges of
the work. He confidently states that he had been “entirely successful, making an instrumental survey for the entire distance—a length of line, as actually run, of 742 miles—together with reconnaissance work for about 300 miles more,” but gives little detail about the intricacies of the work, which took two months to complete.15 (His party entered Canton, two days ahead of schedule, on February 15, 1899.)

In his report to the American China Development Company, he estimated the cost at $40 million or $42,500 per mile, and declared that the line would be well-used by the Chinese, who until then relied largely on rivers for transportation. Parsons estimated that the Canton-Hankow line would produce earnings of $4,000 to $4,500 per mile, within the range of the earnings of the existing Imperial railways.

He was most proud of his work in discovering what he called the “true pass” through the mountains at Cheling which, he says, the Chinese had failed to discover, although the proposed rail line roughly followed the route of one of the oldest trade routes in the country. In reaching the Cheling Pass, the summit of the Nanling range, Parsons discovered a “hitherto unknown pass” three miles east and nearly 150 feet lower than the one used for thousands of years and “over which was carried, until the opening of the Yangtze, all the traffic between south and central China.”16 For centuries, Parsons wrote, “the poor coolies have been carrying their loads, quite unnecessarily, up and down one hundred and fifty feet of elevation. What a waste of human energy!”17 In summing up his work, Parsons wrote:

In addition to determining the general location of the railway, we established the longitude and latitude of the various cities, discovering, as was to be expected, differences in their locations as usually platted...we established the lines of drainage, both north and south of the Nan-ling Mountains, correcting many errors; but, above all, we discovered the true pass across the range connecting the head-waters of the Yu-tan with those of the Wu-shui, to which the staff gave the name of ‘Parsons Gap,’ and so marked it on our map.18

The discovery of that pass, Parsons said, would allow for the construction of a rail line “with an abnormally low ruling gradient.” For nearly 700 miles of the line, there was “nowhere a gradient exceeding one-half of one percent, that rate being used crossing the spurs as they jut out to the Siang or the Pei River.”19

**Construction of the Railway**

In his writings, at least, Parsons seemed sanguine about the engineering challenges of the Canton-Hankow railroad. In fact, the actual construction of the line proved difficult, not because of engineering or technical challenges but because of political and financial issues and war. The line was not completed until shortly before World
War II. Large sections of it were dismantled or destroyed during the war, and the line was not fully restored until the early 1950s by the People’s Republic of China.

Not long after Parsons completed his survey, the Ministry of Foreign Affairs moved to cancel the concession with the American China Development Company because Belgians had gained control of the company, in violation of a clause in the 1900 loan agreement that stipulated that the concession was to remain in American hands, the belief being that “the United States entertained no political ambitions in China,” according to Chang Kia-Ngau, author of *China's Struggle for Railroad Development*, who served as China’s Minister of Railways from 1935-1937.20

J.P. Morgan & Company bought back the shares held by the Belgians, and the Chinese ultimately bought out the American interests in 1905 with a loan financed by the British, in a transaction that vividly demonstrated the competition among European powers and the U.S. for influence in China. Under the American concession, fewer than 90 miles of the line had been built—a 30-mile branch from Canton west to Samshui and a 56-mile east-west trunk line from Chuchow to Pingsiang.

In an interview with *The New York Times* in 1906, Parsons pointed to Chinese opposition in explaining why only about 30 miles of the Canton-Hankow railway had been built by that time. “It has been bitterly opposed from the very first,” Parsons said, adding, “the Chinese along the proposed line have thrown every obstacle possible in the way of the railroad.” Parsons, who became president of the American China Development Company sometime following the completion of the survey, also said the company recouped its investment and made “a fair, reasonable profit” on the railway.21

The Chinese began construction of the line in Canton in 1906 and by 1915 completed it to Shaokwan, a distance of 139 miles. By 1935, the line was extended north another 30 miles to Lochang, 169 miles from Canton. On the northernmost section, in Hupeh and Hunan provinces, the line between Wuchang (just south of Hankow) and Changsha, a distance of 259 miles, was completed by 1918. In the middle section of the railway, only 32 miles of the line between Changsha and Chuchow in Hunan province was completed by 1911. Work on the central section from Shaokwan to Chuchow, a distance of 252 miles mostly in Hunan province, would not resume until 1930. Of the total line, then, the Chinese built north-south sections totaling 682 miles, and the Americans built 86 miles of east-west branches.

No sooner had the Canton-Hankow railroad been completed, however, than it was systematically dismantled or destroyed during the Second Sino-Japanese War and World War II. The Chinese dismantled huge sections of the line so that it would not fall into enemy hands; the Japanese army destroyed other sections as part of its invasion. By 1942, Chang, the former Railways Minister, estimated that 393 miles of the Canton-Hankow line needed to be rebuilt. The line was not completely restored until the early 1950s.
Adventures in China

Parsons on Chinese Civilization

Judging by his writings, Parsons regarded the engineering challenges of the Canton-Hankow railway as a professional assignment much like any other, save that it took place in a foreign country still largely unknown to Westerners. It was the opportunity to observe and comment on Chinese civilization that engaged and excited Parsons’s intellect, and prompted expressions of eloquence indicating that he thought of himself as a writer as well as an engineer. He begins his book with a review of Chinese history that demonstrated his deep knowledge and respect for what he calls the oldest civilization on earth. While sometimes dismissive of the China of the late 19th century, he was clearly in awe of the historic accomplishments of Chinese culture. He wrote:

With all its differences from ourselves, a nation that has had an organization for five thousand years; that has used printing for over eight centuries; that has produced the works of art that China has produced; that possesses a literature antedating that of Rome or Athens…and which, to indicate a modern instance, was able to furnish me with a native letter of credit on local banks in unexplored Hu-nan, can hardly be denied the right to call itself civilized.22

In his travels through countryside with no contact with the West, Parsons found development that rivaled anything in Europe. He observed “cities whose walls, by their size, their crenelated parapets and their keeps and watch towers, suggested medieval Germany” and farmhouses “exceeding in picturesqueness anything in Normandy or Derbyshire.” The rich dressed in “brocaded silk” and “sable furs” and entertained strangers “with a courtesy and intricacy of etiquette that Mayfair itself cannot exceed.”23

In Hunan, Parsons observed that there were two classes of Chinese, the well-to-do, “who can enjoy life” and the masses, living mostly in the remote countryside, for whom life was a “distressingly depressing” day-to-day struggle.

Not that there is suffering or want, for everyone seems to have a home and enough to wear and eat, but it is life reduced to its simplest form...Of education or religion or any aspiration toward a better or higher life, or intercourse with the outer world, there is none. The soil produces enough food and an occasional surplus, which is sold in the nearest market-town, and thus serves to provide clothing and the other wants, which are of the simplest nature. There seems to be nothing in the way of social intercourse between the people, and life is merely a struggle, day after day, for a bare existence. From one year’s end to the other there is no pleasure, no enjoyment beyond the mere animal instinct of living, and without a single event to break the monotony.24

But ultimately he found parallels between the Chinese and other cultures, in-
cluding his own. “There is the usual struggle for success, attended with the ordinary run of victory or failure; men rise and men go down.”

Parsons was a strong proponent for the modernization of the country and believed that the West, particularly the U.S., should lead that modernization through commerce and education. Western education, and, in particular, science and technology, would be critical in allowing the nation to develop its people and resources. Parsons abhorred the Chinese reverence for precedent, and although he acknowledged that in China, “learning transcends all else in importance,” he ridiculed the centuries-old practice of studying the classics of Chinese philosophy, based largely on Confucianism, which he found “lofty, moral and good,” but of little practical value. He wrote of meeting a boy of about 10 years of age and asking him what he studied in school. “Why, the classics of course,” the boy answered. Parsons was appalled.

Not a word about geography or history, even of his own country, to say nothing of others; not a single line of science; not a single thought of anything that could do him a bit of good or fit him to be a useful member of society, but merely the teachings of Confucius, who lived twenty-five hundred years ago.

Parsons also relates a story of meeting two local officials, well-educated by Chinese standards, who nonetheless had only a vague conception of where the U.S. was, or the relation of the western to the eastern hemisphere. “They had a vast amount of learning, but it was of no practical value. It was the teachings of the fifth century before Christ rather than the nineteenth century after.”

Parsons described these women as “Chinese and Manchu ladies of the upper class.”

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Parsons had great respect for the Chinese as traders, finding them shrewd but fair. He wrote that the Chinese were “quick to see and seize an opportunity to turn a profit” with “no equals in their understanding of the use of money.” His experience in negotiating the terms of his rental of a junk for his party confirmed his appreciation of the Chinese talent for trade. The captain of a particularly fine junk that Parsons sought to rent proposed what was to the Americans the absurdly low fee of 40 taels (about $28) for a one-to-two-month rental, with a crew of eight. “Our faces betrayed our astonishment,” Parsons wrote, whereupon the captain capitulated and asked Parsons to make an offer. Eventually they settled on 36 taels, or about $25. Subsequently, Parsons learned that the captain offered such a low price because he knew that, as a foreigner, Parsons would have a permit to pass all the tax stations and that the captain had stocked the boat with goods to trade, thus making Parsons’s party “partners in a smuggling enterprise!” After that incident, Parsons wrote: “I had, and will always entertain, the highest respect for the ability of a Chinese to turn an honest penny.”

**Chinese Architecture and Engineering**

As an engineer, Parsons took special note of Chinese construction, and pronounced himself both impressed and surprised by the quality of many of the structures he saw. “Everyone knows that the Chinese once led the world in scientific and material development, but that they were acquainted with the principles of good engineering design was a surprise to me.”

In some parts of the country, notably Hunan, he was likely the first Western engineer to see and write about the structures he observed. Parsons admired the walls that surrounded many Chinese cities, as well as pagodas (which he called “an appreciation of the beautiful”) and houses, which, although constructed cheaply, he found “ingenious applications of practice.” He also found that the “skyscraper” method of con-

\[\text{The pagoda at Wu-chang, which Parsons called “one of the most beautiful and best preserved in the country.”}\]
structing buildings by first constructing a rigid frame and then encasing it with thin masonry walls, “supposed to be something essentially American,” in fact was practiced throughout China.30

What impressed him most, however, was the Chinese use of the arch, which he believed possibly predated the use of the arch by the Romans. He found the arch widely used in bridges throughout the country, and speculated “that it long antedates any possible foreign suggestions,” but that, like “so many other [Chinese] inventions and discoveries, never passed beyond the national borders.” Writing of two bridges that he particularly admired, Parsons declared: “Either of these beautiful structures would have done credit to any architectural engineer brought up in the most fastidious school of Europe.”31

But in architecture as in education, Parsons criticized the Chinese reverence for the past, and disinclination to innovate, which resulted in a monotonous built environment. Parsons complained that “wherever a new building goes up it takes the same form as the one it displaces, so that one feels that not only is everything the same throughout the country, but that it is just the same now as it was ever so many years ago, which is probably the fact.” He also bemoaned the use of cheap materials and the poor workmanship that made Chinese buildings unable to endure. “Consequently China is singularly devoid of antique buildings.”32

Parsons’s harshest criticism of the Chinese engineer concerned what he described as an inability to grasp the importance of machinery and movement. The Chinese “have learned how to construct bridges, erect pagodas, and concentrate their forces to build a wall fifteen hundred miles long, but not how to construct a machine, or to do any of the things the basal principle of which is movement.” He argued that if China were to develop, it must develop engineering that would allow for large-scale mining, pumping and distribution of water, efficient means of transportation and machines to replace manual labor.33

China’s Future

To Parsons, China in the late 19th century was “a nation which died centuries ago, but which has never been buried, and continues to remain above ground as a sort of vivified mummy.” But he believed that China was poised to begin a process of mod-
ernization that would place it among the leading nations of the earth sometime in the 20th century. China’s greatest asset, according to Parsons, was its people, who “are by nature peaceful, law-abiding, industrious, frugal, hard-working and patient—qualities absolutely essential to producing a great nation.”

Opening itself to the west was critical for China’s development, according to Parsons, although he believed that foreign powers were exploitative, excepting the U.S., and to a lesser extent, Great Britain.

With the exception of Great Britain, all the world powers in the Far East to-day are working or wishing for the dismemberment and consequent destruction of China. It is due to Great Britain’s refusal to join with the others that China still continues to be a sovereign power. The success of American commercial invasion depends absolutely on the maintenance of the existing status.

Parsons was convinced that the relationship of China and the U.S. would be mutually beneficial, and he was an advocate for aggressive American intervention in Chinese commerce. In July of 1900, he told *The Evening Post*:

> America is regarded as the only nation which has incurred no suspicion of seeking territorial aggrandizement at the expense of the Celestial Kingdom… I thoroughly believe that [China] is open to us now to assume a leadership which will lead directly to these results: The restoration of peace, order, and stable government; the introduction in the Orient of liberty and freedom; the conservation of the integrity of the Chinese Empire; the establishment of the policy of the ‘open door,’ and the complete opening of China to modern civilization, and thus eventually to Christianity.

Assuming that China could develop a modern, efficient government, institute Western-style education and work effectively with foreign powers in developing the country, Parsons expressed confidence that China’s “development and regeneration will be the leading feature of the early years of the new century.” He predicted “a new intellectual activity, and an appreciation of patriotic unity which…will enable China once more to take her place among the great nations of the earth.”

‘The Most Interesting Episode in My Life’

Parsons had kind words for some of the individual Chinese with whom he came in touch. He expressed official gratitude to Sheng Ta-jen, the Director-General of Railways, and Sheng’s two American-educated secretaries. Parsons also recalled with humor and affection the “genial and whole-souled” General Liu Kao-chao, the military commandant of Changsha, and his “unfeigned delight in his midday topple of Scotch whiskey,” the memory of which was one of the highlights of Parsons’s journey. He saved his warmest praise,
however, for his two bodyguards, whom he called his “faithful friends.”

Summing up his experience in China in a letter to his friend, Edward M. Shepard, Parsons admitted to “being somewhat underweight and feeling very tired,” but wrote that he was leaving China “with much regret.” His work in China, he wrote, “is likely to form the most interesting episode in my life.”

China may well have been the most exciting adventure in Parsons’s life to that point, but back in New York, his life’s work awaited him. He left China in late April 1899 to return to New York and the Herculean challenge of building the city’s subway.
Chapter 5: Building the New York Subway

By the turn of the century, New York City was ready to move forward with the construction of underground rapid transit. New York would not be the first of the world’s great cities to offer subterranean travel. London had opened the world’s first subway in 1863, followed by Glasgow (1886), Budapest (1896) and Paris (1900). Nor would New York be the first city in the U.S. with a subway; Boston had opened an underground trolley in 1897.

“In January of 1900 everything that had once stood in the way of subway construction had been overcome,” according to historian Wallace B. Katz. “Technology was no longer a problem: Frank Sprague had perfected his multiple-unit control system for electric motive power, and tunnel construction was long beyond the innova-
tive stage. Subways in Boston, London, Paris, and Budapest had demonstrated that underground travel could be as attractive as surface or elevated railways."

A contract to build the subway had been advertised in November 1899, with bids due in January 1900. The contract required the winning bidder to build a 21-mile system from lower Manhattan to the Bronx, including terminals and stations, for a fixed sum, but the contractor would receive the cost of the land to be acquired (up to $1 million) as well as the cost plus 10 percent of the terminals and improvements (up to $1.75 million). The contractor was also required to furnish all the equipment, including rolling stock and power systems. In addition, the winning bidder would pay rental equal to the interest on the bonds issued by the city to finance the project plus one percent additional per year to be deposited into a sinking fund to retire the bonds upon maturity. The term of the contract would be 50 years, renewable for 25 years. The motive power was not specified by the contract but it was generally assumed it would be electricity. The project was to be completed in four and one-half years.

Bids for Contract No. 1 were opened on January 15, 1900. The winning bidder, John B. McDonald, offered to build the underground railroad for $35 million. A rival bidder, Andrew Onderdonk, said he would build it for $39.5 million, plus a percentage of the profits. The board ultimately decided to award the contract to McDonald. The contract was signed on February 21, 1900.

**McDonald, Belmont, Parsons**

McDonald had spent most of his life in construction, building railways and waterworks. He built rail lines for the Canadian and Pacific Railroad, the New York Central Railroad, the Delaware, Lackawanna and Western Railroad, and the Pennsylvania Railroad. He had recently completed a tunnel for the Baltimore & Ohio Railroad in Baltimore and was also building the Jerome Park Reservoir in the Bronx. McDonald's

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*August Belmont Jr., John B. McDonald and Parsons were partners in building the New York subway.*
construction credentials were unquestioned, but he could not raise the $8 million in cash and surety bonds required by the city as security.

Enter August Belmont, Jr., the financier who represented the interests of the Rothschild banking family in the United States. Belmont took over the contract, filing articles of incorporation for the Rapid Transit Subway Construction Company in Albany on February 19, 1900, with himself as president. A few days later McDonald turned his contract over to Belmont, although he remained as contractor. In 1902 Belmont formed another company, the Interborough Rapid Transit Company, to lease and operate the completed subway.

The triumvirate of Belmont, McDonald and Parsons presents an interesting study. Belmont, the son of a wealthy Jewish banker, was educated at Phillips Exeter Academy and Harvard College and succeeded his father (August Belmont, 1813-1890) as one of the leading financiers of his day. Short of stature but with an outsized personality, he lived extravagantly and had many interests, including horse racing (he bred Man o’ War and built Belmont Park racetrack) and politics (he was active in the Democratic party). McDonald, the son of a successful contractor and New York City alderman, was no less forceful a personality, and he had important connections to the Tammany Hall political machine. A journalist of the time described him as “a solid, grim man with a thick chest, brawny arms and an iron jaw—masterful, self-controlled, capable.” Parsons, a descendant of Tories, was a Victorian gentleman with an aristocratic bearing and strong ties to the business elite that had advanced the idea of rapid transit. By all accounts the three respected each other. Although there were some tense moments during the construction of the subway, at its conclusion each warmly praised the contributions of the others.

As Chief Engineer of the Board of Rapid Transit Railroad Commissioners, Parsons supervised the work of Belmont and McDonald, and they routinely deferred to him. A book about the building of the subway published by Belmont’s company described Parsons’s role:

…sweeping powers of supervision were given the city through the Chief Engineer of the Board, who by the contract was made arbiter of all questions that might arise as to the interpretation of the plans and specifications. The city has been fortunate in securing for the preparation of plans the services of Mr. William Barclay Parsons, one of the foremost engineers of the country…it was he who was to superintend on behalf of the city the completion of the work.3

The Interborough Rapid Transit subway was at least the third enterprise in which Parsons and Belmont were involved, and they would join forces later on the Cape Cod Canal. Citing statements by Belmont’s grandson, historian Wallace B. Katz contends there is reason to believe that Parsons persuaded Belmont to undertake the construction of the subway, as well as other projects.
Belmont and Parsons were close friends, and the former was often drawn into the latter’s adventurous schemes. Their relation before, during and after the construction of the subway was that of two business partners, with Parsons as the partner who initiated the plans for great projects, and Belmont as the partner whose money and financial acumen brought the project to realization. Parsons was the inspiration for Belmont’s participation in the New York District Railway scheme, in the Chinese Railway, and later, in the construction of the Cape Cod Canal, and it is not implausible to assume that it was Parsons who also interested him in the subway.

However Belmont came to be involved in the subway, he, McDonald and Parsons were now ready to begin their collaboration on a public works that would rival anything done in the United States until that time.

**Breaking Ground**

A groundbreaking ceremony was held on the afternoon of March 24, 1900, at City Hall Park, attracting a crowd of 25,000 that came to witness Mayor Robert A. Van Wyck, members of the Rapid Transit Commission, Belmont, McDonald and Parsons inaugurate the subway. John Philip Sousa and his band serenaded the crowd, which was also entertained by a spectacular pyrotechnic display and a 21-cannon salute. The entire city joined in the celebration. “Steam craft in the harbor blew their whistles, church bells chimed, and at the ferry slips the fog bells were rung,” according to Benson Bobrick’s account in *Labyrinths of Iron*. Mayor Van Wyck used a silver spade...
provided by Tiffany & Co. to turn over the first dirt. In his speech, the mayor said the completion of the subway would be second in importance only to the Erie Canal. When it was McDonald’s turn to shovel some earth, he gingerly moved a small amount of dirt beside the hole. “If your laborers shirk work like that,” Parsons joked, “there will be trouble.”

Actual work on the subway began two days later, at the corner of Greene and Bleecker Streets, with the lowering of a sewer line to make way for excavation. In a much more modest ceremony, Parsons posed for photographers with a pickax that he swung to the ground before a crowd estimated at 2,000, many of whom were looking for work.

**Engineering Challenges**

Parsons now faced the task of supervising an undertaking of staggering complexity and scope. In addition to his own engineering staff at the Rapid Transit Commission, which numbered more than 300, Parsons would oversee McDonald and his dozen subcontractors as well as an army of laborers estimated at 7,700 to 12,000. More than 15 miles of tunnel would have to be dug, including about 11 miles of shallow “cut and cover” trenches and four-and-one-half miles of deep tunnels—along Park Av-
The initial 21 miles of the New York subway included 15 miles of tunnels and six miles of elevated lines.

...every yard of the subway was a new problem...there were no precedents to guide and no experience on which to draw in the designing and execution of such an undertaking. The engineers had actually to teach themselves, for there was no one else to teach them.

There was every form of subsurface construction, subways in steel and concrete, in reinforced concrete and in masonry, and tunnels in sand, in rock and beneath the treacherous bed of the East River under high air pressure. There were elevated...
structures, high viaducts, arches in steel, and bridges, both fixed and draw. Miles of sewers, some large enough to accommodate a carriage and pair, were built; the water supply and other services sufficient for a good-sized city were rearranged, and the details of underpinning houses, then little known, developed.

...there were men whose opinions could not be brushed aside, who feared that steel buried in the ground would be attacked by corroding subsurface liquids and soon be destroyed; others who seriously questioned the free use of concrete, a material then seldom used; while three eminent engineers signed a report stating that when the East River tubes were relieved of the inflated pressure of the compressed air they would collapse.6

Although some machinery was used, much of the work was done by the labor of men, horses and mules. “‘Parson’s ditch’ was an open-cut job using hand labor, horse drawn carts, and steam hoists and drills,” wrote historian James K. Finch. “Street crossings were provided for by temporary wood bridges spanning the cut where, in long sections of open excavation, man and beast toiled with earth and rock.”7

Before the subway could be constructed, a maze of underground utilities had to be rerouted, as in this photo of work under way at Elm (now Lafayette) and Bleecker streets in April 1901.

“From the outset the engineers experienced the greatest difficulties,” The New York Times wrote in 1908. “A hundred delays occurred entirely due to unseen causes;
Park Avenue and 34th Street, November 1901.

Broadway and 72nd Street looking north, October 1902.
Building the New York Subway

Dyckman Street station in upper Manhattan, December 1905.

Courtlandt Avenue and 149th Street, Bronx, September 1902.
the streets were torn up and made impassable; the whole town was disturbed. Thou-
sands of people lost patience with the whole business…”8

Before any tunnels could be dug, the builders first had to deal with a crazy-quilt pattern of underground utilities that had to be rerouted from the path of the subway. The location of most of these utilities was not even known, and the work of relocating them was onerous and exceedingly inconvenient for the public. As part of subway con-
struction, Parsons wanted to create “pipe galleries” into which relocated and future utilities could be placed. That would have made future utility work much easier, but Par-
sons was overruled in that wish. Sewers posed the greatest problem. “It was evident,”

Parsons wrote, “that a complete reconstruction of the sewerage system along the route would be necessary, involving the building of 7.21 miles of sewers along the route of the railway, and 5.13 miles of sewers in streets other than that followed by the route.”9

For about half of the route, Parsons specified cut-and-cover construction, in which after rerouting the utilities the workers excavated a shallow trench, constructed the sub-
way “box” inside of it, and then covered it. While efficient, digging a trench meant that nearby property owners and residents often had to contend with an open cut for weeks or months. “Parsons’s ditch” was widely reviled. “The whole place was a great chasm,” reported The Evening Sun in describing a stretch of 42nd Street where open-cut tun-
neling was employed. “Business in the neighborhood went to ruins. Crowds hurrying to
the Grand Central Terminal passed rows of empty houses, from which storekeepers and

The disruption caused by cut-and-cover construction is evident in this photo of work under way at Mulberry and Elm (Lafayette) streets in August 1901.
other occupants had fled as it from the plague. The neighborhood of City Hall, too, re-
sembled a cross between a mining camp and a mound dwellers’ colony.”

In response to the complaints and the obvious problems of open-cut construction,
Parsons and his engineers devised a refined method, in which a trench was excavated and
then covered over so that normal street life—including trolleys, horse-drawn carriages
and pedestrian traffic—could continue more or less as usual. This “decked roadway”
method was first employed on the extension from City Hall south along Broadway to South
Ferry, and subsequently used for all extensions of the subway. In an editorial following
completion of the work in 1904, *The Globe* claimed that Parsons had so perfected the use
of cut-and-cover construction that the method was now assumed to be his invention (al-
though in fact cut-and-cover had been used elsewhere before the New York subway).

Mr. Parsons . . . followed none of the established plans, but designed a new one by
seeking to discover the method best adapted to the needs of the situation. So thor-
oughly is it his own that it is known in the scientific world as the ‘Parsons’ system,’
and it will stand on the records as an enduring monument to his genius.

Hard-rock tunneling, which was employed along Park Avenue in midtown Man-
hattan and for the two-mile Fort George tunnel in Washington Heights, was also a
formidable undertaking, performed largely by the labor of hundreds of miners (often
called “sandhogs”) who descended upon New York from all over the world to take up

*The tunnel at 181st Street in Washington Heights, March 1901.*
the demanding, dangerous work. Historian Clifton Hood described the methods employed in blasting through rock:

The workers started by sinking a vertical shaft at both ends of the tunnel. Then they isolated a small section at the bottom of each shaft and began drilling a narrow heading there. This heading was advanced by drilling holes seven feet into the face of the schist and putting dynamite charges in the cavities. After detonating the explosives, the laborers returned to the face, cleared the rubble, and braced the new section of the tunnel. Then they started drilling again. This cycle of drilling, blasting, clearing, and timbering continued until the two headings met in the middle and the tunnel was completed. The workmen then enlarged the tunnel to its full size, lined it with concrete, and installed tracks, third rails, and signals.¹²

The Fort George tunnel, which reached depths of 180 feet, was the deepest section of the subway. Work began in July of 1900. Shafts at 168th Street and 181st Street were dug within six months, and then the miners began around-the-clock horizontal tunneling. The New York Times described the changing conditions that faced the workmen:

When the tunneling began it was only guesswork as to what sort of rock or soil would be struck. The engineers were delighted when they found the cleavage of the rock such that little or no timber-shoring was necessary. It was considered unusual luck. The satisfaction lasted until the miners pierced north of 181st Street. Then they struck bad ground. The soft material needed bolstering. Hidden
springs moistened the mixed rock and earth and made extreme care necessary. The men had to protect themselves every foot of the way by propping up the roof of the tunnel with stout timbers.13

By March 1904, workmen simultaneously excavating from north and south met at 190th Street. Parsons invoked his privilege as Chief Engineer to be the first to crawl through the aperture.

The tunnels under the Harlem River from Harlem to the Bronx and under the East River from South Ferry to Brooklyn also posed unusual challenges. Parsons approved innovative construction methods—including the use of compressed air—proposed by the contractor for the twin cast-iron tubes under the Harlem River. Historian Charles Scott described the method of construction:

The presence of clay, silt, and irregular rock assured the contractor of difficulty and danger should he proceed to drive the tunnel with a conventional shield. He suggested building a rectangular-shaped, submerged coffer dam extending from the shore to the middle of the river and within this caisson-like structure, excavating the rock and earth and constructing the tunnel, one half at a time. [Parsons] agreed to permit this unique method of tunnel construction, and work on the Harlem River tunnel began from the west side of the river in June, 1901.14

Parsons closely supervised all aspects of the construction of the subway, recording many of his actions and impressions in a diary that he kept from the first day of construction through March 1904. In one of his first entries, he referred to the possibility of political interference. “I notified [the contractor] that there were no politics in the work, and that the [Rapid Transit] Commission would support him in any attempt to keep politics out.”15 A month later, when pressed by an assemblyman for a job on the staff of the Rapid Transit Commission, Parsons wrote: “I explained to him the situation in regard to examinations, and that we had no positions to give away, but that I would do what I could if a vacancy occurred with the contractors.”16

Parsons frequently pushed McDonald and his contractors for faster and better work, and he sometimes demanded the firing of workers who were drunk or incompetent. His diary entry for December 14, 1900, recounts a meeting with the chief contractor:

Told McDonald that I did not consider that the work was progressing quite fast enough—that the force should be increased considerably, and that by Spring at least four times as much work should be done as is now handled.17

At times he even clashed with Belmont. In his diary entry for September 14, 1903, he wrote:

Called on Mr. Belmont, at his request, who...complained that I was holding up the work on Broadway in violation of the contract. Pointed out that I was not violating
Elm (Lafayette) Street and Great Jones Street, August 1901.

Union Square, c. 1902.
Building the New York Subway

Fourth Avenue and 23rd Street, May 1903.

Columbus Circle (Broadway and 59th Street), July 1901.
the contract, but that his people had never complied with the contract, and that I was insisting, both in his interest and our own, that that work should be done in a manner entirely satisfactory to the property holders so as not to disturb traffic.\(^{18}\)

A few days later, Parsons and McDonald bickered openly during a meeting of the Board of Rapid Transit Railroad Commissioners. McDonald told the commissioners that the work on lower Broadway was being stalled by Parsons, who would not issue permits for construction until all materials were on site. “We have the tools and the machinery, but we are not allowed to get to work,” McDonald complained to the board.

“The contract is very clear,” Parsons replied. “It provides that permits to open the streets shall not be granted until the material for construction is on hand…When the contractor complies with the condition of the contract I will issue permits, but I will say right here that no plan to open the street and block traffic will ever receive my sanction.” But such disputes were all in a day’s work for the two men. After McDonald left the meeting, a reporter asked Parsons what he thought would be the outcome of the clash between McDonald and him. “Clash?” Parsons replied. “I know of no clash; it is just a difference of opinion, that is all. I shall live up to the terms of the contract and so will Mr. McDonald, you may rest assured.”\(^{19}\)

**Accidents and Deaths**

In the end, the work was concluded successfully, but the project was marred by a number of accidents, and dozens of men lost their lives in the course of the work.

A gruesome accident occurred on January 27, 1902, when dynamite being stored in a powder house at Park Avenue and 41st Street exploded, killing six persons and injuring more than a hundred others. Among the dead were two tunnel workers as well as guests and an employee of the Murray Hill Hotel. “It appeared as if an earthquake or a terrible hurricane had struck the city and laid it waste,” according to an account in *The New York Times*. “The Murray Hill Hotel appeared as if it had been bombarded by big guns all night…there was ripping and sawing all along the front of the Grand Central Station [an earlier version of the current landmark structure].”\(^{20}\)

The tunnel itself, however, sustained no structural damage. A grand jury indicted the contractor, Ira A. Shaler, a friend of Parsons, on a charge of manslaughter. Called the “hoodoo contractor” by the local press, Shaler suffered another accident just two months after the first, when a cave-in of the tunnel along Park Avenue between 37th and 38th streets damaged several houses of prominent citizens. “All that Mr. Parsons would say about the cave-in was that it was unavoidable and could not have been foreseen,” wrote *The New York Times*. “The work on the tunnel, [Parsons] said, would not be seriously retarded, as it is far advanced at that point. He added that the damage to the tunnel is trifling, but he would make no estimate as to damage to the houses.”\(^{21}\)
No one was injured in the Park Avenue cave-in, although the front walls of four houses had to be replaced and Belmont eventually purchased at least three of the damaged houses at a reported cost of $1 million.

Three months after the cave-in, as Parsons was inspecting the Park Avenue tunnel with Shaler, disaster struck again, this time killing the contractor. Parsons himself narrowly escaped injury. As Parsons, his deputy, George Rice, and Shaler were inspecting the tunnel at about 40th Street, a huge boulder suddenly dislodged and struck the contractor. Parsons and Rice were standing under a reinforced section of the tunnel and so escaped injury, but Shaler, who had stepped away from the timbered roof to inspect the rock, was struck by more than a ton of rock. Shaler was “crushed down, terribly mangled, and his horrified companions knew in a moment that he was very seriously, if not fatally, hurt,” according to The New York Times.

“While the contractor was buried beneath the debris Mr. Parsons rushed for assistance.” Shaler, gravely wounded, managed to ask Parsons to accompany him to the hospital. He died there 12 days later.

“We all stood close together when the accident occurred,” Parsons later told the New-York Tribune, “and I am surprised that all of us were not injured.” He continued:

Major Shaler [the injured man served as a major in the Spanish-American War], is a capital fellow as well as an efficient contractor. Coming as it does after the ill luck that seems to have steadily haunted his section of the tunnel, it is particularly distressing. The accident was not the result of carelessness on the part of any one. It was simply Major Shaler’s ill fortune that he happened to be in the wrong spot. I might have been standing there.

The day before Shaler died, Parsons asked the District Attorney to have the indictment against Shaler quashed. In his annual report to the Board of Rapid Transit Railroad Commissioners, Parsons defended Shaler’s work and claimed the contractor “was not in any way to blame” for the “series of unfortunate occurrences” that ended with Shaler’s death. In unusually emotional language, Parsons paid tribute to his friend:

Major Shaler by his integrity of character; his charm of personality; his skill as an engineer; his energy as a contractor, and his sense of justice towards his employees, won the regard of all with whom he came in contact. Therefore his sudden and sad death was felt as a personal loss by everyone connected with the work; and especially by the Chief Engineer, who has rejoiced to be able to claim Major Shaler as a personal friend for many years, and who having been at his side when he was mortally struck, knows that he met his death with courageous resignation, for even at the supreme moment he thought only of his work and of others and not of his own suffering.
Two days after the fatal accident, Parsons again inspected the Park Avenue tunnel, and directed the continuation of work to complete the tunnel.

The most dramatic and fatal accident in connection with building the subway took place on October 24, 1903, when a giant mass of rock in the Fort George tunnel in Washington Heights dislodged, killing 10 workmen. A crew of 22 workers supervised by foreman Timothy Sullivan was blasting the heading of the tunnel about 100 feet underground St. Nicholas Avenue and a few hundred feet north of 193rd Street when the accident occurred.

Following a dynamite blast, Sullivan led his men into the gaping hole when 300 tons of rock that had been loosened by the blast suddenly crashed down on them. Six men were killed instantly, three others “lingered a few minutes in frightful agony,” and a fourth, “who was released only by cutting off his leg,” died shortly after reaching Lebanon Hospital, according to an account in The New York Times. Some of the Italian laborers were identified with great difficulty as they were known only by numbers. A Catholic priest administered the last rites of the church to several of the injured, and a small army of civilians helped in the rescue and recovery effort.

Parsons, who was out of town on the day of the accident, received word of it by telegram the next day. On Monday, he examined the scene of the accident with his deputy, Rice, and others. “The fall of rock was due to the presence of a nearly horizontal seam, thus permitted the roof to fall,” Parsons wrote in his diary on that day. “The presence of this seam could not have been detected.”

In his report to the Board of Rapid Transit Railroad Commissioners for 1903, Parsons pointed out that it was well-known that the rock in the Fort George tunnel was “of very bad character” and that at his suggestion the contractor abandoned driving the heading of the tunnel south from Fort George and instead drove northward from 181st Street and installed permanent masonry lining as soon as possible. The accident occurred “in spite of all these precautions,” Parsons wrote, adding that an investigation by the city’s coroner “entirely exonerated the Contractor from any blame, it having been decided that all possible precautions had been taken by him.”

The Fort George tunnel had been the site of at least one other fatal accident. In 1901, falling rock in the shaft at 168th Street killed five men. “The Coroner’s inquest that immediately followed entirely exonerated the sub-contractor and the foreman in charge of all blame,” Parsons told the Rapid Transit Commission in his report for 1901.

All told, 74 workmen and others lost their lives in accidents from 1900 through 1904 during Parsons’s tenure as Chief Engineer, according to his reports to the Board of Rapid Transit Railroad Commissioners.
Building the New York Subway

No sooner had work begun on the 21-mile route in Manhattan and the Bronx than the Board of Rapid Transit Railroad Commissioners turned its attention to extending the subway to Brooklyn, authorizing Parsons in February 1900 to make the necessary borings and investigations. In the spring, Parsons presented the board with a proposed 3.1-mile route from City Hall in Manhattan, southerly under Broadway to Bowling Green and Battery Park, then under the East River to Brooklyn, along Joralemon Street and Fulton Street to Atlantic Avenue, where the subway would connect to a terminal of the Long Island Rail Road. The board adopted Parsons's plan in June.

In July 1902, the board awarded a contract, known as Contract No. 2, to Belmont's Rapid Transit Subway Construction Company for the extension to Brooklyn. Belmont bid $3 million to build the extension, plus $1 million for terminals for work that Parsons estimated at $8 million to $10 million. The only other bid was from the Brooklyn Rapid Transit Railroad Company, for $7 million for construction and $1 million for terminals. Belmont bid low to ensure that his firm would win the work and to allow the city to retain enough capital to build additional extensions, which he hoped his company would also win. “[Belmont] wanted a monopoly and was both willing and able to make a low bid…and he was sure that future profits were well worth the small risk involved,” according to historian Wallace B. Katz. “The RTC had nothing against monopolies, and was looking for a good bargain. Both parties got what they wanted.”29

The subway was expanded 3.1 miles from City Hall in downtown Manhattan to Atlantic Avenue in Brooklyn under Contract No. 2.

Extension to Brooklyn

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The contract for the Brooklyn extension was awarded to Belmont’s company on September 11, 1902. Work began on November 8, on the excavation of a sewer line. The most difficult piece of construction on the Brooklyn extension was the tunnel under the East River to Brooklyn. Two cast-iron tubes, about 6,500 feet long, were driven simultaneously from shafts sunk at South Ferry in Manhattan and near the intersection of Joralemon Street/Henry Street in Brooklyn Heights. The work was done by means of shields and compressed air. “The shield was pressed forward a few feet a day, the workmen, or ‘sand hogs,’ excavating the material in front of it and installing the cast iron rings of the tubes under its protection, the water in the material above being driven out by compressed air introduced into the workings through pipes connected with compressors on the surface,” according to historian James Blaine Walker.

A Citywide Plan of Rapid Transit

In May 1902, as construction was proceeding on the initial segment of the subway, the Rapid Transit Commission directed Parsons to prepare “a comprehensive scheme of rapid transit for the whole city.” The following year, Parsons delivered two reports, one on February 19, 1903, in which he laid out a plan for extending the rapid transit system in Manhattan and the Bronx, and a second, on March 12, in which he presented plans for additional rapid transit in Brooklyn and Queens. Acknowledging that the 24-mile line then under construction in Manhattan, the Bronx and Brooklyn was woefully inadequate to meet the city’s needs, Parsons proposed a 37-and-one-half-mile extension of the subway in Manhattan and the Bronx and another 37 miles of extensions to the subway in Brooklyn.

“There is no difference of opinion on the statement that our first subway has become inadequate even before it is finished,” said Parsons in commenting on his plan. “It will be overcrowded from the start. The other lines are necessary, and each one of them supplements the others. I have arranged the plan so that travel will be evenly distributed and every passenger can travel comfortably.”

Manhattan and the Bronx

The Manhattan-Bronx line then under construction started on the east side, crossed to the west side at 42nd Street, and continued north along Broadway on the west side to Harlem and Washington Heights, and then in two branches to the Bronx, one due north along Broadway to the Kingsbridge section of the Bronx, and another that ran east through Harlem, under the Harlem River to the Bronx Park (now the site of the Bronx Zoo and The New York Botanical Garden). The 37-and-one-half-mile expansion of that system proposed by Parsons included the following:
An extension of the east side line north from 40th Street and Park Avenue under Grand Central Station and along Lexington Avenue to the Mott Haven section of the Bronx, where it would connect with the New York Central and Mott Haven Railroads. (The No. 4, No. 5 and No. 6 trains currently travel this route.)

An extension of the west side line south from 42nd Street along Broadway to 14th Street, and then south along University Place, Wooster and Church streets to South Ferry at the southern end of Manhattan. (The current N/R line follows roughly this route down Broadway to South Ferry. Another line, the No. 1, extends south from Times Square along Seventh Avenue and Varick Street to South Ferry.)

A new line under 32nd Street from Broadway to Seventh Avenue to connect with Pennsylvania Station, then being planned for a site between Seventh and Eighth avenues and West 31st and West 33rd streets. (Such a line was never built.)

A line under 110th Street connecting the proposed east side line with the line to be built along Lenox Avenue to the Bronx. (This 110th Street subway was never built.)

An extension of the Bronx line along or through Bronx Park to Wakefield. (The line was ultimately built along the eastern border of the park and is now traveled by the No. 2 and No. 5 trains.)

“Connections should be made at as many points as possible with the subway and elevated lines,” Parsons said, adding that his plan “not only extends the subway, but makes it an evenly-balanced system, with separate east and west lines, and with intercommunication between such lines.” He also recommended extending existing lines, which were controlled by Belmont, and using “private capital without encroaching on the debt-incurring capacity of the city” to build new lines. He estimated the cost of his plan at $45 million to $50 million, about one-half of which “will fall on the city.”

Parsons was forthright about the fact that Belmont’s monopoly of underground and elevated rapid transit made it likely that Belmont would build future extensions of the subway. “There is no such thing as competition in this city’s transit management,” Parsons said. “Why should there be? If the municipal authorities provided that the people may go up and down town with the necessary speed and comfort, and at a five-cent fare everywhere within the city, what is the use of competition? There are certain things we want, but competition between transit companies is not the way to get them.”

The city’s mayor, Seth Low, also defended the probable award of additional contracts to Belmont. Referring to Parsons’s report, he said: “Such a perfect scheme as is proposed would have been impossible under the old regime. We could do nothing with Mr. Gould [Jay Gould, the former owner of the Manhattan Elevated Railway Company], but now that Mr. Belmont is at the head of the elevated roads the plan will be simple of accomplishment.”
Brooklyn

Less than a month after proposing his plan for Manhattan and the Bronx, Parsons presented the board with a $52 million plan for Brooklyn, including 37 miles of new subway. Parsons proposed the following:

- Extending the subway from the Atlantic Avenue terminal along Flatbush Avenue to Prospect Park. (The 2, 3, 4 and 5 trains currently travel this route to Prospect Park and then branch off into separate lines along Eastern Parkway and Nostrand Avenue. The B and Q trains travel a similar route to Prospect Park and then along East 15th and East 16th streets and ultimately to Brighton Beach.)

- A line along Eastern Parkway to East New York. (The No. 4 line travels this route to Crown Heights; the No. 3 train travels farther, to East New York.)

- A line from Prospect Park south along Flatbush Avenue to East Broadway.

- A line beginning at the Atlantic Avenue terminal and running south along Flatbush Avenue to Fort Hamilton. (The D, M, N and R lines all run along Fourth Avenue in Brooklyn.)

- A “loop” subway in Lower Manhattan and Brooklyn that would link to the tracks of the elevated railway on the Williamsburg Bridge and eventually connect with an elevated line Parsons proposed for the Manhattan Bridge.

Mayor George McClellan (second from left) and other dignitaries take a tour of the nearly completed subway in 1904. John McDonald is standing on the platform, in the foreground.
“It is interesting to point out,” Parsons wrote, “that these proposed subways, if constructed, will connect the great park systems of the city of the New York, from Bronx, Pelham and Van Cortlandt parks on the north, passing Central Park in the middle, and reaching Prospect Park on the south.”

1904: The Subway Nears Completion

Even as he was laying out future subway routes, Parsons continued to direct construction of the initial segment of the subway. By the beginning of 1904, after three years of work, it was clear that the subway would be opened before the end of the year.

On New Year’s Day of 1904, Mayor George McClellan, Alexander E. Orr, the president of the Rapid Transit Commission, Parsons, McDonald and others took a tour of the subway. They traveled in a hand car “propelled by the brawn of eight or nine cheerful sons of Italy,” according to a report in The Sun. While the trip through the dark tunnels proved monotonous, “the stations brought expressions of delight from everybody in the party.” At a celebratory party after the tour, the assembled guests praised McDonald. “We all want to thank you for giving us an opportunity to appreciate this great work,” one of the guests said. “Pshaw,” rejoined Parsons. “There’s no citizen so poor that he cannot appreciate it much more comfortably a few months from now—for five cents.”

A few weeks later, Belmont led a similar tour for a group of prominent business-
men, including John D. Rockefeller, Cornelius Vanderbilt and Jacob Schiff. “I had no idea what a great success I was to see,” Rockefeller told The New York Times. “Of course I think the tunnel is a wonder,” added Vanderbilt. “Who wouldn’t, after seeing it?"38

Parsons apparently felt comfortable enough with the progress of the work by the end of March 1904 that he left the city for a month to travel to Panama in connection with his work for the Isthmian Canal Commission, which would advise President Theodore Roosevelt about a proposed canal across Central America. He returned to New York on April 20 and left a week later for England to serve on a board to review plans of the Royal Commission on London Traffic, for which he had been granted a three-month leave of absence by the Rapid Transit Board. He returned to New York on August 22 and continued as Chief Engineer until the end of December 1904.

Opening Day

The opening of the subway was set for October 27, 1904, a little more than the four and one-half years specified in the contract. On that day, the subway would open for service between City Hall and 145th Street on the west side line, a distance of 9 miles. Openings of additional sections of the railway quickly followed, but the entire 24-mile line being

The opening of the subway on October 27, 1904 was celebrated from City Hall, shown here, to Harlem.
constructed under Contract No. 1 (21 miles in Manhattan and the Bronx) and Contract No. 2 (the 3-mile extension to Brooklyn) would not be completed until 1908. Although the entire line would not be ready for operation by opening day, by any measure, completing 9 miles of the nation’s greatest system of underground rapid transit in four and one-half years was an astounding accomplishment, and Parsons, Belmont, McDonald and the Rapid Transit Commissioners were proclaimed civic heroes.

The opening day festivities began at 1 p.m. with a 75-minute formal program at City Hall during which speeches were given by Mayor George McClellan, members of the Board of Rapid Transit Railroad Commissioners, Belmont, McDonald and other dignitaries who spoke before a crowd estimated at 600 that roared its approval at every opportunity.

“Chief Engineer Parsons received a big ovation from the moment he entered the door…It was hard to tell which was more popular with the audience, the chief engineer or the contractor. Every time the name of either was mentioned there was a new demonstration, and when their turns came for speaking the din was deafening,” according to an account in The New York Times. Parsons gave by far the shortest speech of the day when he simply declared:

Mr. Mayor, Mr. Orr and Mr. President, I have the honor and very great pleasure to state that the Rapid Transit Railroad from the City Hall Station to the station of 145th Street, on the west side line, is ready and complete for operation.

Parsons “blushed like a schoolboy as the audience applauded and would not be quieted,” according to The Times.39

Alexander E. Orr, the President of the Board of Rapid Transit Railroad Commissioners, declared that while the Board was responsible for the completion of the subway, “the merit of the plan of construction and supervision from beginning to end is Mr. Parsons’ alone.”40

At the end of the speechmaking, Belmont presented Mayor McClellan with a specially made silver controller to operate the first train, and the dignitaries left City Hall for the subway. “The tooting of factory whistles that had begun at 2 o’clock was still in progress, and a continuous cheering of the crowd marked the passage of the guests toward the station,” reported The New York Times.

From the Battery to Harlem, at the same time, the tugs, ferry boats, and steamships on the two riverfronts were blowing their greeting, vying with the steam whistles of hundreds of power plants, the chiming of church bells, and the cheering of citizens. The city was in an uproar from end to end…41

The first train left the City Hall Station at 2:34 p.m., with the mayor at the helm and hundreds of invited (and uninvited) guests aboard. Mayor McClellan was supposed to relinquish the controls to a motorman after ceremonially beginning the journey, but he in-
sisted on running the train himself. With no experience in operating a train, the mayor
gave the guests a few unwelcome thrills, as when, shortly after beginning its journey, the
train lurched to a sudden stop when the mayor inadvertently activated the emergency
brake. The Interborough Rapid Transit Company’s General Superintendent, Frank Hedley,
pleaded with the mayor to surrender the controls. “No, sir,” the mayor said, “I’m running
this train!” Finally, McClellan gave way to a conductor at 103rd Street, who finished the
journey to 145th Street, arriving at about 3 p.m., making the first run in about 26 minutes
and reaching 96th Street, then defined as the southern border of Harlem, in 19 minutes,
thus more or less justifying the slogan, “to Harlem in 15 minutes.”

The city greeted the subway with jubilation. An estimated 27,000 people rode the
subway for free that afternoon, and another 111,881 paid to ride between the hours of
7 p.m. and midnight. Thousands of others watched people going in and out of the
entrances, and throngs lined Broadway in Harlem to watch the first train emerge
from the tunnel at about 122nd Street and proceed on a viaduct to 133rd Street. The
*New York Times* described the scene:

> …a giant crowd had assembled at every available place of vantage for blocks around.
On the vacant lots, on roofs and in every window, men, women, and children cheered
and waved their hats and handkerchiefs. [The train] slowed down and started the whistle.
Every factory in that part of the city answered him, and the boats out in the river
began a tooting that could be heard in the train until it dived into the earth again...

The crowds were described as good natured but rowdy. “There was lots of noise
of the hilarious, buoyant sort, a great deal of celebrating of the inoffensive kind, no
end of joking and holiday spirit,” according to *The World*. Parsons was restrained in his assessment of his work. “The subway speaks for itself;” he said that night. “It is not for me to praise it. But I want to tell you that I feel happy and con-
tented tonight with what we have done this day. And to judge by the crowds everyone else is
happy too.” But he was quick to add that the subway was not the solution to the city’s transit
woes. “The railroad is not expected to be all that New York City should have,” he said, “but,
on the other hand, is hoped to be but a beginning of a comprehensive system such as the
future generation of New Yorkers and the inevitable growth of the city will require.”

In any case, there was no need for Parsons to tout his own work, for the newspa-
pers and magazines of the day outdid each other with superlatives for what *The New
York Times* called “the greatest achievement of the time in municipal engineering.”
*The Sun* declared it “the finest, handsomest, most complete and best equipped under-
ground railway in the world” and *Scientific American* said it was “the most com-
plete and up-to-date system of public transit to be found in any part of the world.”

In their coverage of the subway opening and of Parsons’s resignation from the Rapid
Transit Commission two months later, the newspapers praised him lavishly.
“Mr. Parsons has served the city with skill and fidelity in connection with an undertaking of vital importance to its welfare,” wrote the *New-York Daily Tribune*.47

“Rarely has it fallen to a man to win such undisputed rank in his profession while yet in his prime. . . He [Parsons] evolved the plan which is now completed, and in so doing invented what is virtually a new method of subway construction,” according to *The Globe*.48

An editorial in *The New York Times* was especially effusive:

In the public jubilation over the opening of the Subway to traffic the work of the Chief Engineer of the Rapid Transit Commission should not be forgotten. If the Subway is successful in construction and operation, the credit belongs to him more than to all the others who have had connection with it. . . In the organization of his staff personal considerations were dismissed and ‘influence,’ social or political, had no weight. His appointments were all made with the strictest and singlest regard to merit, and for no other consideration than fitness for the work to be done...and the manner of its execution establishes his reputation on an enduring basis.49

The day after the opening, a persistent reporter for *The World* caught up with Parsons after chasing him for days and elicited from him a more fulsome statement of pride in his work. The reporter, Kate Carew, asked him: “Does—does it give you any emotion to have finished the first stage of your work—not to have it with you anymore—to have given it to the world?” Parsons replied:

I had a feeling this morning of pleasure—when I went into the station to come downtown and saw the people rushing for the trains—the first morning rush on the Subway—it did give me a great feeling of pleasure, quite a little emotion, the thought that I had been instrumental in bringing it to pass. I really felt that I had done something for somebody, that I had helped people along a little bit. I stood there and watched them for quite a while, and it pleased me—yes, it made me happy.50

**Express Service**

The subway was an instant hit. Designed for a maximum capacity of 400,000 daily, it was carrying an average of 284,000 passengers by December. “No railway has ever shown such a traffic at the end of two months after its opening,” said Parsons.51 Daily ridership passed 800,000 by 1908.

Express service proved the most popular feature of the new subway. The four-track system from City Hall to 96th Street allowed for both express and local service, and speeds on the express reached 40 miles per hour. Above 96th Street, where the system had two or three tracks, some express service was possible on the three-track sections. Express-stop stations were about one and one-half miles apart; local stops about one-quarter of a mile apart. Parsons was particularly proud of the express service. “This marks to date the maxi-
The station at 18th Street, Manhattan.

The station at 28th Street, Manhattan.
Kiosks like this one at Broadway and 104th Street marked entrances and exits for the subway.

The City Hall station, with its dramatic curved vaults, chandeliers and skylights, is generally considered the most beautiful of the stations. It has been closed since 1945.
mum development in rapid transit facilities,” he said, adding that it would “probably soon be repeated elsewhere, and will eventually be exceeded in New York by an express service with even higher speed, that is, with fewer stops.” In fact, with the exception of New York, express rapid transit service remains rare to this day.

**Design of the Stations**

The stations of the new subway were generally well-received by the public. Although not as elegant as some of the great European systems, they were intended to be aesthetically pleasing. A 1901 visit to Europe by Parsons, Belmont and other officials of Belmont’s company convinced them of the importance of station design. “I think we learned from the Paris roads the necessity and desirability of making of our underground road look attractive,” Parsons told the *New-York Tribune*. “[The Paris Metro] stations are designed with an exceedingly pleasing appearance. I think the desirability and necessity for doing away with unsightly stations appealed to every one in the party.”

Indeed, the contract for construction of the system stated that the stations, as part of “a great public work,” were to be “designed, constructed, and maintained with a view to the beauty of their appearance.”

Parsons was intimately involved in the design of the 49 stations (37 underground and 12 above ground), working closely with George L. Heins and Christopher Grant LaFarge, the architects hired by the Rapid Transit Commission in 1901 to develop an aesthetic treatment for the stations. Parsons described the design of the stations in his 1902 report to the Rapid Transit Board:

> Although a general principle of design has been laid down no details will be repeated, so that no two stations will be alike. This it is hoped will produce a pleasing variety in effect. The main features of the design are floors of concrete for the platforms; walls of brick, enameled tiles, faience or terra cotta; and ceilings of plaster. The base of the walls for a height of about 30 inches will consist of very hard vitrified but light colored bricks to withstand the rough treatment that such portions of the walls are certain to meet. Above this brick base the main treatment of the surface will be white tiles, but divided into panels by decorative work in colored tiles, faience or terra cotta. The name of the station will be boldly displayed by large decorative tablets at intervals, and the number of the street, if numbered, or the initial letter, if named, will be worked in the design of the cornice at shorter spaces of about fifteen feet. This will greatly facilitate passengers in recognizing stations from car windows.

Heins and LaFarge specialized in the design of churches and were most well-known for their work on the Cathedral of St. John the Divine in Manhattan. But with the New York City subway, Heins and LaFarge were “not working with space but merely with decoration,” wrote historian David J. Framberger in his 1978 study for the

All of the station work...was designed by the engineers of the Rapid Transit Board under Parsons’ direction. The raw brick walls and concrete ceilings were then turned over to Heins and LaFarge to be ‘beautified’. The decorative scheme that they devised was certainly influenced by Parsons, for it is again similar to the Paris Chemin de Fer de Sceaux [an underground railway in Paris that had impressed Parsons during his 1894 tour of European subways].

The 133 kiosks that originally covered many of the subway entrances and exits were inspired by similar structures of the Budapest subway and were among the most distinctive features of the system’s design. Over the years, the kiosks became subject to vandalism and defacement, and were also considered traffic hazards. They were gradually removed and no original kiosks remain, although a reproduction has been installed at Astor Place.

Without question, the crown jewel of the subway’s design was the City Hall station, although it was closed in 1945 and can no longer be seen by subway patrons. The station consists of several dramatic curved vaults finished in terra-cotta tile by the R. Guastavino Company, which produced a similar design for the Oyster Bar in Grand Central Terminal. Leaded skylights and chandeliers added to the elegance and grandeur of the station. “City Hall station...was the only subway station in which decorative design was related to structural form,” according to historian Framberger. “Whereas the other stations and structures relied on applied historicizing decoration, the beauty of City Hall station was the result of structural elements directly tied to its peculiar plan.”

In his assessment of the stations, Framberger concluded that the designs by Heins and LaFarge were successful despite an ongoing tension between LaFarge, “an ardent traditionalist,” and Parsons, described by Framberger as “a strict modernist, embracing every aspect of 20th-century technology.”

The Power House

A distinctive although usually overlooked structure connected to the subway was the mammoth power house located on a full city block between 11th and 12th avenues and 58th and 59th streets.

The power house was designed to be a monumental and beautiful structure. “Lacking a Grand Central or St. Pancras, the IRT company lavished its attention on the main power house to make it the symbol of the company befitting the goals of the City Beautiful movement,” according to Framberger.

The coal-fired behemoth had a generating capacity of 100,000 horsepower, more
than any electrical plant built to that time, according to the Interborough Rapid Transit Company. The building was designed by the engineers of the IRT Company, although famed architect Stanford White of the firm of McKim, Mead and White contributed a Beaux-Arts Renaissance facade. *The New York Times* agreed that the power house was an impressive building:

> The Interborough management is entitled to a compliment for the civic spirit shown in adopting a design for the power house which makes it an ornament to the neighborhood in which it is placed... The building is an ornament to the west side and enhances rather than diminishes the value of surrounding property. But for its stacks, it might suggest an art museum or public library rather than a power house.60

The plant, which is now fired by oil, is still in use, although it is now owned by Con Edison, the local utility, which uses it to provide steam to its customers.

**Problems with Ventilation**

One feature of the subway that did not meet with public approval was ventilation and the quality of air in the stations. Complaints about the air in the underground stations began almost immediately and worsened when warm weather arrived in the spring of 1905. Framberger attributes the problems to Parsons’s over-reliance on natural ventilation.
The original design of the New York subway relied entirely on natural ventilation and piston action of trains to purify the air. Because the tunnel was located directly below the street and electric traction utilized for power, no mechanical means of ventilation seemed necessary. Frequent stations with many stairways, plus blow-holes located in the center of Broadway on that portion of the line north of 60th Street, provided openings for the circulation of air.61

Excessive use of asphalt for waterproofing also contributed to the problem, according to historian James Blaine Walker. “The waterproofing, it was found after the subway was opened, was impervious to air as well as water, with the result that it tended to keep the heated air, generated in the tubes by the friction of the wheels and machinery, from escaping.”62

A report prepared for the Board of Rapid Transit Railroad Commissioners by a Columbia University professor, Charles F. Chandler, concluded that the air in the subway was “entirely satisfactory” and “for all practical purposes quite equal to the air of the street,” but the complaints continued.63

In June 1905, an exasperated Parsons (who was no longer Chief Engineer) said: “I knew this agitation would come. . . The air in the subway now, while oppressive, is pure. I don’t know how any remedy can be applied. Some little relief may be afforded, but no real remedy.”64

Parsons’s assessment failed to satisfy The New York Times, which castigated him for
his “somewhat impatient declaration that whether the air of the subway is good or bad, it is the best which can be provided.” The newspaper went on to propose exactly how ventilation could be improved with additional holes and fans for ventilation.

Parsons’s successor as Chief Engineer, George Rice, agreed that by the summer of 1905, “it became apparent the circulation of air in the subway, particularly in the deep stations, was not as good as it was expected to be, or should be, and that on warm days the atmosphere was extremely oppressive.” While insisting that the air in the subway “is practically as good as the air in the street, containing the normal percentage of oxygen, with a very small increase in carbon dioxide above that in the outer air,” Rice arranged for additional openings and the installation of large ventilating fans at express stations such as Brooklyn Bridge, 14th Street and 42nd Street.

Other changes made to improve ventilation were described by Framberger:

The simplest change was the removal of station vault lights for replacement by open gratings. In the portion of the subway between Brooklyn Bridge and Columbus Circle, where no ventilation openings between stations had been provided in the original construction, fourteen ventilating chambers were constructed adjacent to the tracks between stations. These chambers were controlled by automatic blowers which exhausted air out of grated openings, thus drawing in fresh air through stairways and gratings at the stations.

Completion of the Subway

The Manhattan-Bronx route progressed in phases, with 16 miles completed by the end of 1904, when Parsons resigned as Chief Engineer. Following the official opening of the initial 9-mile segment on October 27, 1904, the west side line was extended a half-mile to 157th Street by November 5. A 3-mile section of the east side line between 96th Street and Lenox Avenue/145th Street in Harlem was opened on November 23. A 3-mile section of viaduct between 149th Street/Third Avenue and 180th Street in the Bronx was opened on November 26.

Parsons addressed the issue of the timeliness of the subway’s completion in his final report to the Board of Rapid Transit Railroad Commissioners. With his usual precision, he noted that the time elapsed from the groundbreaking on March 24, 1900, to the grand opening on October 27, 1904, was “four years, seven months and three days.” Several months were lost in “perfecting an organization,” he wrote, and the subcontractors did not begin work in earnest until about July 15, 1900. Excluding time lost to strikes, the initial opening to 145th Street was accomplished in “a trifle more than four years,” according to Parsons.

Elsewhere, Parsons and officials of the Rapid Transit Construction Company said that the initial segment would have been completed by December 1903 were it not for strikes that
idled hundreds of men for months at a time, as well as the unusually harsh winter of 1903-04. In an interview with The New York Times in January 1904, Parsons said:

There has been freezing temperature almost continuously since November. Most unusual weather for New York! Take the work of decorating stations, for instance; the plaster won’t stick in such weather, and it is impossible to finish the job. Then there is the ballasting of the tracks, for which the company was getting most of its material from the quarries of the Hudson River. Those quarries have been practically out of business since the long freeze began. Only a few weeks ago a contract was made with a Connecticut quarry to furnish 1,000 cubic yards of ballast every week, but the cold has such an effect that they have delivered only 400 cubic yards a week.

The cold (and a strike in March 1903) also delayed the completion of the power house. “There we see the same problem with the plastering, and the men don’t work as well when they are half frozen,” said Parsons. “The whole trouble carries round in a circle, with the unprecedented cold hampering you at every point.”

Planning for the Future

Two days before he resigned from the Rapid Transit Commission, Parsons presented the commissioners with a plan for 16 miles of new subway lines and 12 miles of extensions to existing lines at an estimated cost of $49 million. The aim of his plan, Parsons said, was to provide a through line from the Bronx to the Battery on the east side, and on the west side from the Battery to 42nd Street, with connections to the existing subway at key points. (Many of these recommendations were similar to those he had made in 1903.) In a report to the board dated December 29, 1904, Parsons proposed new lines in Manhattan and the Bronx as follows:

From the Battery north to Lexington Avenue at 44th Street, near Grand Central, a distance of 4.5 miles, and then along Lexington Avenue north to Morris Avenue in the Bronx, a distance of 5.6 miles. (This is roughly the route of the No. 4, No. 5 and No. 6 trains to the Mott Haven section of the Bronx, where they branch out into three lines.)

A short connection (.4-mile) between Morris Avenue and the existing subway at East 149th Street in the Bronx. (This connection was never built.)

From Battery Park north to 34th Street and Seventh Avenue (near Pennsylvania Station, then under construction), and continuing to the existing subway at Times Square, a distance of about 4.5 miles. (The No. 1 train now follows this route.)

A half-mile cross-town line along 34th Street from Broadway to Lexington Avenue. (This line was never built.)
For the Bronx, Parsons proposed extensions of the existing subway as follows:

Extending the west side line 1 mile from its terminus in Kingsbridge to Van Cortlandt Park. (The No. 1 train now terminates at 242nd Street at Van Cortlandt Park in the Riverdale section of the Bronx.)

Extending the east side line from its terminus at East 180th Street, under the Bronx Park to the city’s border with Mount Vernon, a distance of nearly 5 miles. (The No. 2 and the No. 5 trains now roughly follow this route, although they travel along the east border of the park and not through it as Parsons proposed.)

For Brooklyn, the board had directed Parsons to lay out a line from Fort Hamilton under Fourth Avenue to Flatbush Avenue, and then under Flatbush Avenue and over the Manhattan Bridge to Manhattan. Parsons planned such a line, which is now traveled by the N and D trains. He also proposed an alternative, which was never built, along Hamilton Avenue, under the Buttermilk Channel to Governors Island and the East River to Battery Park. Finally, he proposed an extension of the existing Brooklyn line from Prospect Park easterly along Eastern Parkway, which is now traveled by the No. 3 and the No. 4 trains.

Parsons Resigns

Following the opening of the initial segment of the subway on October 27, Parsons continued as Chief Engineer for another two months before resigning on December 31, 1904. The completion of the initial segment of the subway and Parsons’s announcement of his resignation prompted The New York Times to reflect upon his 10-year tenure as Chief Engineer of the Rapid Transit Commission.

New York City will ever hold Mr. Parsons in high respect, not alone as an engineer, but as a gentleman who has established the fact that great public works may be carried to completion with clean hands and an unsullied reputation.

Parsons himself was proud of his steadfastness in seeing the project through. In a summary of his career that he wrote in a letter to Nicholas Murray Butler in November 1904, he said:

As I look back, if there was anything that I take pride in it is the characteristic of holding on to the rapid transit problem, and bringing to a successful conclusion what appeared, many times, a hopeless fight; although sometimes I question whether this was wise firmness or stupid obstinacy.

Looking back on his work on the 25th anniversary of the opening of the subway, Parsons gave this assessment in an article he wrote for The New York Times:
The contract was completed within the time set for the price and, although the work was of a pioneer character, the record for speed of construction has never been equaled in subsequent work.72

Parsons never claimed, however, that the system he oversaw solved the problem of public transportation in New York City, and he believed that mass transit was a need that would never be completely satisfied.

The Steinway Tunnel

Parsons was only peripherally involved with the subway following his resignation from the Rapid Transit Commission. However, he worked for Belmont in 1906 and 1907 as consulting engineer on the Steinway Tunnel under the East River between Long Island City and Manhattan, which was completed in September 1907 and is now part of the route traveled by the No. 7 train between Queens and Manhattan.

For the Steinway Tunnel, Parsons “conceived the idea of building an artificial island in the East River near the south end of Blackwell’s Island, where he sank a shaft and drove two shields east and west, at the same time working from the [Man-

Work under way on the Steinway Tunnel in June 1906. The tunnel, which connects Queens and Manhattan, was completed in 1907 but did not become part of New York’s subway system until 1915.
hattan] and Long Island shores…he had four headings under way at once,” according to a biography of Parsons prepared by his business partners.73

Originally, the Steinway Tunnel (named for William Steinway, the piano manufacturer who had an interest in an earlier scheme to build a tunnel from Queens to Manhattan and also chaired the 1891 Rapid Transit Commission), was intended to carry trolleys from Queens to Manhattan. The tunnel opened on September 21, 1907, but was closed a week later following a fire and an ongoing legal dispute between Belmont and the city. The tunnel remained sealed and idle until 1913, when it was transferred to the city for $3 million as part of an expansion of the subway under Contract No. 3 and Contract No. 4. In June 1915, the tunnel, which had been retrofitted for heavy rail subway vehicles and renamed the Queensboro Subway, opened for service between Jackson Avenue in Long Island City and a station in Manhattan on East 42nd Street between Third Avenue and Lexington Avenue. The line, on which the No. 7 train now runs, was subsequently extended to Flushing in Queens and to Times Square in Manhattan.

**The Subway After Parsons**

Segments of the subway designed by Parsons opened during the three years following his resignation as Chief Engineer. Contracts Nos. 1 and 2 were finally completed in May 1908 with the opening of the line to the Atlantic Avenue Terminal in Brooklyn. Openings were as follows:

On July 10, 1905, the subway was extended from City Hall to South Ferry at the southern tip of Manhattan.

An extension from 135th Street/Lenox Avenue under the Harlem River to the intersection of 149th Street/Third Avenue in the Bronx also opened in July 1905.

The stretch from 157th Street in Washington Heights (including the two-mile Fort George tunnel) to 225th Street in the Kingsbridge section of the Bronx opened in stages during 1906. The line was extended to 221st Street in March. The deep stations at 168th and 181st Street opened for service in April and May, respectively. The line reached 225th Street in the Bronx in January 1907.

On January 9, 1908, the subway was opened to Borough Hall in Brooklyn, and on May 1 of that year, the line was completed to the Atlantic Avenue terminal of the Long Island Rail Road.

An extension from 225th Street to 242nd Street/Van Cortlandt Park in the Bronx—an addition to the original contract—opened on August 1, 1908.
Entrance to the station at Broadway and 72nd Street, following completion of the original system.

Entrance to the station at Broadway and 72nd Street in 2009. A new station entrance was built to the north of the original structure, which is still in use.
In March 1913, Contracts No. 3 and No. 4, called the dual contracts, were awarded by the city to Belmont’s Rapid Transit Subway Construction Company and the Brooklyn Rapid Transit Company (known as the BRT and later renamed the Brooklyn-Manhattan Transit Corporation or BMT). Under the dual contracts, New York’s subway system more than doubled in size by the 1920s. Parsons had no involvement in the dual contracts.

The system was further expanded with subways built and owned by the city. In 1925, construction began on the city’s Independent Subway System (IND), which added seven more routes to the system. In June 1940, the three lines—IRT, BMT and IND—were consolidated into one system owned by the city. In 1953, the New York City Transit Authority was created as a public corporation to manage and operate all of the city’s subways.

Today, New York City’s subway system comprises more than 660 miles of active track and 468 stations and is used by average of nearly 5 million people each weekday and 1.5 billion people annually, making it the world’s third-busiest subway, after Tokyo and Moscow. MTA-New York City Transit is currently building a new subway along Second Avenue in Manhattan and extending the No. 7 line west and south of Times Square. Parsons Brinckerhoff, the firm founded by Parsons in 1885, is at work on both projects.
Chapter 6: The Cape Cod Canal

Shortly after his resignation as Chief Engineer of the Board of Rapid Transit Railroad Commissioners following the opening of the New York City subway, Parsons entered another venture with August Belmont—the Cape Cod Canal—that was almost as audacious but not nearly as successful as the subway. In building the canal, Parsons and Belmont accomplished what countless others had tried and failed to do over nearly three centuries. By any measure their achievement was enormous, and they delivered the project more or less as promised, although it was ultimately a financial loss for Belmont’s company. The two were supremely confident going into the venture, but unforeseen problems delayed the completion of the work and marred what was nonetheless a monumental feat of engineering.

The Cape Cod Canal connects Buzzards Bay (at top) to Cape Cod Bay (at bottom).
A Dream for Three Centuries

For nearly three centuries, New Englanders envisioned a canal across the isthmus of Cape Cod, connecting Buzzards Bay and Cape Cod Bay. The idea dates back as far as 1623, when Miles Standish, the military captain of the Plymouth Colony, sailed the Scusset River, crossed a narrow ridge of land, and met Dutch traders who had sailed the Manomet (Monument) River, establishing a trade route between the English and Dutch colonists. At the time the Scusset River and Monument River were separated by less than three miles of land, and a land cut would have provided a water route for small craft from Buzzards Bay to Cape Cod Bay. In 1697, the General Court of Massachusetts appointed a committee to examine a possible canal route “from Barnstable [Cape Cod] Bay, so called, into Monament [Monument] Bay.” This was the first of many such surveys and studies, most of which failed to advance to construction.

The idea of a canal also interested George Washington, who in 1776 ordered engineer Thomas Machin to investigate “the practicability of cutting a canal between Barnstable and Buzzards Bay” that could be used to move his Continental Army by water from Boston to New York. Machin proposed a canal seven and one-half miles long, 14 feet deep, with two double locks. Washington ultimately recalled Machin for pressing duties in the War of Independence, and nothing came of Machin’s scheme.

No actual work on building a canal was undertaken until the 1880s, when there were two abortive attempts. In 1880 the Cape Cod Ship Canal Co. put more than 400 Italian laborers to work digging by hand on land between Sandwich and Scusset Harbor. The company did not pay the laborers, however, or provide them with food, and in October of that year they revolted, even briefly kidnapping the contractor’s son with the idea of holding him for ransom. Eventually they retreated to their quarters, the town fed them, and they were returned to New York. Another charter, also in the name of the Cape Cod Ship Canal Co., was granted in 1883 to a group that contracted with Frederick A. Lockwood of Boston to dig the canal. Lockwood, whom Parsons called “a singular genius,” provided a new 32-bucket, 75-horsepower dredge that excavated a channel nearly a mile long, about 15 feet deep and 100 feet wide. “Now, for the first time since Miles Standish began the trading route in 1623, and after all the fruitless surveys and plans by the United States, by the Commonwealth of Massachusetts, and various private parties, actual work was begun,” wrote Parsons in a paper presented to the American Society of Civil Engineers in 1917.

Lockwood’s effort ultimately failed, however, after “he suffered a stroke of apoplexy,” turning over his interests to Thomas L. Livermore of Boston, who continued the work, excavating about 700,000 cubic yards, “before the dredge was subsequently and mischievously set on fire” and the sea filled in the beach end of the cut. “If little physical result was accomplished,” Parsons wrote, “the Lockwood attempt is entitled to the
honor of the first actual construction and a demonstration that some people were at length willing to do more than make surveys.” Many other concerns petitioned for the right to build a Cape Cod Canal, and various other charters granted by the Commonwealth of Massachusetts lapsed without ever putting a shovel in the ground.

**Belmont Assumes the Project**

In 1898, New York businessman DeWitt Clinton Flanagan became interested in the project, and the following year he and eight associates obtained a charter as the Boston, Cape Cod and New York Canal Co. to build a canal nearly eight miles across the isthmus of Cape Cod. The canal was to have a bottom width of 100 feet, a minimum surface width of 200 feet, and a depth of 25 feet. The company was given the right of eminent domain but had to relocate railroad tracks, highways and bridges, and maintain crossings of the canal for the local inhabitants. The canal was to be completed in five years.
After one of Flanagan’s primary investors withdrew from the project, he approached August Belmont, who had just successfully financed and built the New York City subway. Belmont became interested in the project in 1904. The following year, Parsons was appointed Chief Engineer of the Cape Cod Canal. In 1906, he directed the preparation of a report that concluded that a canal was feasible and recommended the construction of a sea-level canal, rather than one with locks. In 1907, Belmont assumed control of the Boston, Cape Cod and New York Canal Co. from Flanagan and agreed to carry out the work for $12 million, half to be paid in bonds and half in stock in the company. Also that year, plans for the canal were approved by the Board of Railroad Commissioners and Harbor and Land Commission.

Through the years, three reasons were typically given for building the canal. One was commercial, as a land cut through the isthmus would save some 75 miles for vessels on the trip from Boston to New York, making trade and transportation between the two cities faster and easier. General Washington was among the first to see the canal’s possible military importance in shielding ships from enemy attack on the open seas. A third reason was the horrific loss of life and property suffered by mariners during 300 years of sailing around Cape Cod, with its treacherous shoals and frequent storms. By one account, there were 2,131 shipwrecks along the Cape Cod coast between 1845 and 1903, and 700 sailors and fishermen lost their lives. “The circumnavigation of the cape is far from easy,” Parsons told an audience at the Atlantic Deeper Waterways Conference in Philadelphia in 1907.

The shoals, the low, sandy coast, difficult to see in thick weather, the frequent fogs, and the unbroken exposure to northeast storms, have made the passage of the cape a dreaded one to all mariners, and the record of wrecks year by year, with their shocking loss of ships, cargoes and life, is ample testimony that their fears do not lack foundation.

Parsons believed the Cape Cod Canal would be of national and not just local importance. “This canal is not a channel for local traffic, but is essentially a ship canal for ocean-going vessels in through service,” he said. He also believed the canal would be “a great boon to coastwise traffic, as it will shorten the trip to Boston for big boats by five or
The Cape Cod Canal

six hours. The steamboats which run up outside of Long Island will be able to make Bos-
ton by 8 a.m., leaving New York the previous night at 5 p.m., without burning extra coal.7

Belmont, in a speech to the National Rivers and Harbors Congress in 1911, ex-
plained his reasons for taking on the project. “This canal is going to serve an annual
carrying trade already amounting to 25,000,000 tons of merchandise going around
the Cape today and 500,000 passengers,” he said.8 Belmont also pointed out the ca-
nal’s potential use during wartime and held out the possibility of widening and deep-
ening it for use by war vessels if the federal government determined it was of military
value. (The government did not then take Belmont up on his offer, although it event-
ually took over operation of the canal in 1918 and operated it during World War I
and again during World War II.) Certainly the scope and unprecedented nature of the
work appealed to Belmont and Parsons; they were unfazed by the gargantuan chal-
lenge that awaited them. At the groundbreaking on June 22, 1909, Belmont said:

There is absolutely no doubt about the outcome. The canal will be completed
and ready for operation in about three years and a half. While I have not been
able to explain why this canal has not been built long ago, I admit that the pres-
ent conditions are far more favorable than they ever were before…It is both a
poor and stupid argument that the past failures to build this canal should still
move skeptics on the subject. The subway in New York passed through the same
ordeal for twenty years or more. Our chief engineer, William Barclay Parsons,
who is now in Europe, is just as sanguine about this as he was about the New
York subway, and so am I.9

Parsons confidently told a reporter for The New York Times that the canal would
be finished “in three years.”10

A Sea-level Canal

When he took on the challenge of the Cape Cod Canal, Parsons brought to it his ex-
perience on the Isthmian (Panama) Canal Commission and the Board of Consulting
Engineers for the Panama Canal, which advised President Theodore Roosevelt on the
proposal to build a canal across the isthmus of Panama. Although Parsons and the
board were unable to persuade Roosevelt and the U.S. Senate to build a sea-level ca-
nal in Panama, with the Cape Cod Canal Parsons got the chance to prove that such a
canal was feasible.

The idea of constructing a canal across Cape Cod without locks was not a new
one. Parsons pointed out that as early as 1870, J.G. Foster, Lieutenant Colonel of En-
gineers, U.S. Army, proposed a canal without locks, and that other authorities
through the years, including Clemens Herschel, President of the American Society of
Civil Engineers, had endorsed that view. Others contended that the difference in tides
between Buzzards Bay and Cape Cod Bay would make a canal without locks untenable, and this debate continued until well after the canal was completed. In a speech to the Boston Chamber of Commerce in 1910, Parsons estimated the tide in Buzzards Bay at between 4 and 5 feet and the tide in Cape Cod Bay at between 9 and 12 feet, and he was subsequently proved correct. According to the New England Division of the U.S. Army Corps of Engineers, the mean range of tide in Buzzards Bay is 4 feet and in Cape Cod Bay, 9.4 feet. High tide in Buzzards Bay precedes high tide in Cape Cod Bay by three hours, and mean tide in Cape Cod Bay is about 5 inches lower than mean tide in Buzzards Bay. The current changes every six hours and reaches an average maximum velocity of 4 knots at mean tide—twice what Parsons estimated in 1910.

Parsons’s sea-level scheme proved successful, although the tidal movement posed some challenges for mariners and caused an embarrassing incident on opening day in which a boat carrying Belmont’s guests was swept past its intended mooring station. As late as the 1930s, the idea of adding locks to the canal was still being seriously debated.

The canal was to be just under eight miles from Buzzards Bay to Cape Cod Bay, with an approach channel in Buzzards Bay of about five miles in length, making the entire channel 13 miles long. Parsons considered a number of possible configurations for the land cut before deciding on a route largely suggested by George Baldwin in 1862. Parsons told the Boston Chamber of Commerce that his plan was to follow the Monument River from the head of Buzzards Bay, “widening, deepening and straightening it, then cutting through the low ridge that forms the divide between the watersheds of Buzzards and Barnstable [Cape Cod] Bay on the Scusset marshes just west of the town of Sandwich.”

Parsons’s route for the approach canal in Buzzards Bay required two turns, the assumption being that dredging would be easier under such a configuration, as boulders in Buzzards Bay would be avoided.

**Boulders Pose a Challenge**

Having determined the route of the canal, Parsons turned his attention to what lay in the way of the digging. Boulders were a concern, as was the possibility of quicksand. Parsons consulted with Charles M. Thompson, who had been assistant engineer for Frederick Lockwood’s failed attempt to build a canal in the 1880s. Thompson had made tidal studies and test borings, which he gave to Parsons, who tested them by placing a sample in a tumbler of water. “The sample showed fairly strong evidence of quicksand, and Mr. Parsons nodded his head,” according to an account in *The Boston Globe*. “This was exactly in line with what had been told him, and was the basis
of many abandonments of the canal scheme.” Thompson, according to the *Globe*, “pointed out to Mr. Parsons that cross-section bearings had never been taken, that the fine sand—or quicksand—was from the center line of the route, and would be below the bottom of the proposed canal. He argued so well that Mr. Parsons consented to have cross-section borings made.” No quicksand was found, and Parsons reported favorably on the project to Belmont, who agreed to finance it.\(^{12}\)

Parsons “was convinced that the engineering problems in constructing the canal were relatively minor,” wrote William James Reid in a history of the canal that he wrote for his doctoral dissertation at Boston University, later published by Eleanor Robson Belmont. “The soft sand would be removed by hydraulic suction dredges; there were no ledges; there were a few boulders and some hard clay, but nothing difficult.”\(^{13}\)

If Parsons was confident, Belmont was even more so. In 1911, when the project was well under way, and even Belmont admitted to “some difficulties,” he nonetheless belittled the challenges and the naysayers. “During our life as a company, working at this undertaking on the Cape, phantom after phantom, conjured by long years of waiting

*Dynamite was used to clear some of the 700 boulders in the path of the canal.*
Steam shovel excavation in the area between Bourne and Bournedale, near the spot where work began in 1909.

A series of natural dams divided the land cut into sections. Eventually the dams were removed, creating trenches in which dredges completed the excavation of the canal.
The Cape Cod Canal

The Governor Warfield dredges the canal in swiftly moving currents.

As the canal nears completion in 1914, the dredges Governor Warfield (at right) and Governor Herrick (at left) approach each other.
and failure, colored by the croakings of retired seafarers and other loquacious wiseacres, have vanished,” he told the National Rivers and Harbors Congress during a speech in Washington on December 7, 1911. “The exaggerated floes of ice, the unmanageable shifting sands and hopefully destructive winds, and finally the bugaboo of the insurmountable obstacle of a six-foot difference of tides at the two proposed ends of the cut, have faded into commonplace.”

In fact, the building of the canal proved much more difficult than either Belmont or Parsons anticipated, primarily because of the boulders. Reid gave this account in *The Building of the Cape Cod Canal*:

The sands of Cape Cod are deceptive, and the engineers and contractors had expected an easy job of digging out some 15,000,000 cubic yards of soft material. But buried within the soft sand were boulders in quantities and sizes that staggered the imagination. They had not been anticipated and no adequate machinery was available to handle them. Yet they seemed to be everywhere, a scourge which came to haunt the engineers who planned the canal, the bankers who financed it, and the contractors who undertook to excavate it.

Reid pointed out that the available data on boulders was somewhat contradictory. While the presence of boulders had been noted as early as 1791, and the Lockwood dredging operation had difficulty with them in the 1880s, others who had studied a possible canal were unconcerned. Clemens Herschel said that borings in 1875 detected “a few” boulders. Henry Whitney, who held an 1880 charter to build the canal, said there was only “here and there a stray boulder.” The borings taken for the Belmont canal consistently showed “sand with some hard blue clay in the marshes…but no evidence of boulders,” according to Reid. As to why the borings failed to detect the boulders, Reid argued that the consensus was that there were either not enough taken or those that were “just seemed to miss the boulders.” Parsons later put the number of boulders at about 700, some as large as 80 tons, weighing in the aggregate 3,500 tons, and he admitted that they “were found in surprisingly large numbers, even when the canal was considered finished.”

Parsons also acknowledged making a mistake in not using steam-shovel excavation in the dry more extensively, as steam shovels could dig around boulders so that they could be dynamited later. Parsons eventually concluded that the equipment used “was too antiquated and too small for the job,” according to Reid. “In all, twenty-six units had been used in the excavation, whereas only ten units of proper equipment would have been necessary,” wrote Reid. “As a result of this miscalculation and bad luck, construction costs greatly exceeded the original estimates.”

The canal was ultimately delivered in five years instead of the promised three-and-a-half, and it was not deepened to the required depth of 25 feet for another two years.
The Work Begins

Belmont’s Cape Cod Construction Co. signed contracts with several construction companies that would do the work in May 1909, and on June 19, work on the 3,000-foot-long breakwater in Cape Cod Bay began with the sinking of the first block of granite. The ceremonial groundbreaking took place on June 22, 1909, on a farm in Bournedale owned by Belmont’s maternal ancestors, the Perrys. Belmont, with his usual flourish, dug a bit of dirt with a sterling silver shovel from Tiffany & Co. “I promise,” he said, “in digging this first shovelful of earth not to desert the task until the last shovelful has been dug.” Belmont was absolutely confident in his engineer and his project. “All the money necessary is behind the undertaking, and neither from this source nor from the standpoint of an engineering problem are there longer any doubts,” Belmont told about 50 supporters gathered for the ceremony.

Two years later, four miles of the approach channel were completed and the land cut extended two and one-half miles. Belmont declared the work “practically half finished” during a speech to the National Rivers and Harbors Congress on December 7, 1911. “Of the 16,000,000 cubic yards of material, only about 10,000,000 remain to be taken out, and our machinery by February will be accompanied by two 10-cubic-yard dipper dredges, the most powerful and modern in the country now being constructed by the American Locomotive Company for our contractors.” Belmont told his audience that the completion of the canal “cannot in the course of ordinary events be deferred beyond 1913, or at the latest, the spring of 1914. I am wedded to the first date.” In fact, Belmont and Parsons missed the latter date by a few months, and even then the canal had not been dredged to the full 25 feet required by the charter.

The two dredges to which Belmont referred were the Governor Warfield and the Governor Herrick, which were ordered when it became apparent that the work was progressing too slowly and that the existing equipment was not adequate for the work. The two big dredges were not put into service until the summer of 1912, although once in use they performed admirably, excavating as much as 14,500 tons in a day, which the canal company claimed was a world record. Parsons later lamented that “as excellent and economical as were the dredges Warfield and Herrick, they were built too late to permit the work to be completed within the limits of the contract.”

Work went slowly through the winter of 1912, but in the summer of that year, Parsons devised a means to speed up the work in the valley between Bourne and Bournedale. J. W. Miller, the canal company’s vice president, gave this account:

Mr. Parsons then conceived the idea of excavating the central section by steam shovels to a depth of some ten feet below the surface of the sea. To accomplish this, the stream in the valley had to be turned from its natural course westward toward Cape Cod Bay. Dams had to be constructed and huge centrifugal prisms
During a ceremony on April 21, 1914, as the canal neared completion, Belmont reaches across a small ditch to shake hands with Parsons. The dike on which they stood, which would be fully dismantled three months later, separated land cuts that would ultimately connect Buzzards Bay and Cape Cod Bay.
August Belmont “blending the waters” of Buzzards Bay and Cape Cod Bay during a ceremony on April 21, 1914.

The dismantling of Foley’s Dyke on July 4, 1914, allowed the waters of Buzzards Bay and Cape Cod Bay to meet.
The Cape Cod Canal

were installed between them to drain off the surface water...through this fore-sight the big dredges were given a working channel as the dams were cut. 22

Some 800,000 cubic yards of material were removed using this method. By the end of 1912, the canal had been excavated for a distance of nearly three miles, the breakwater in Cape Cod Bay was essentially complete, and more than half of all the work had been completed, according to Reid.

By December the advance dredges working toward the steam-shovel evacuation were less than two miles apart. The subsidiary work—bridges, roads, tracks—was done; the breakwater and approach channels were completed; the riprap was well along. All that remained was to complete the excavation, set out the lighting system, and install the navigational aids. 23

The Bourne highway bridge was completed in February 1913, and by the spring of that year Parsons invited Belmont and a few other investors to view the progress to date. During the remainder of 1913 and into the following year, “the steam shovels cleaned out the trench [while] the Governor Herrick and the Governor Warfield were excavating at either end of the channel with other dredges behind them,” according to Robert H. Farson, the author of The Cape Cod Canal. “Four natural dams left in the steam shovel section divided it into three areas...As the dredges worked toward each other and broke through each dam, canal water flooded that section. The dredge then deepened the channel at that point to roughly eighteen feet at low water.” 24

The Waters Meet

By the spring of 1914, only one dam remained, called Foley’s Dyke. On April 21, Belmont presided over a ceremonial “blending of the waters.” He took a bottle containing water from Buzzards Bay and another with water from Cape Cod Bay and poured the two together. “May the meeting of these waters,” he said, “bring happiness and prosperity to our country and save some of the misery which the waters of Cape Cod have caused in the past.” 25 Workers then removed enough dirt to allow the waters to flow through and Belmont reached across the ditch to shake hands with Parsons. Dredging continued from April to July, with the Governor Herrick and the Governor Warfield working at opposite ends of the canal and within sight of each other.

Belmont chose July 4, 1914, to fully dismantle Foley’s Dyke. Parsons’s wife, Anna, and daughter, Sylvia, ceremonially removed a few shovelfuls of earth. Workers then shoveled off the top of the dam, releasing a powerful surge of water. “The rampaging waters tore at the sides of the dam, rapidly widening it, and the flood smashed through to the lower level, sweeping all before it,” wrote Reid. “It was an awesome sight as trees, huge boulders, and sections of the bank gave way under
the powerful wash of the current.” A short time later, after the water had calmed, Belmont rowed his son, Parsons and Mrs. Parsons through the passage. The Governor Warfield and Governor Herrick continued to dredge the last remaining section, working up to the day before the formal dedication.

Opening Day

Opening day, July 29, 1914, was a grand and festive affair. Thousands turned out to witness the first parade of ships through the canal. The Rose Standish, a passenger steamship carrying Belmont’s guests, led a procession of yachts and destroyers from New Bedford across Buzzards Bay to the new canal. The squadron steamed through the canal from Buzzards Bay to Cape Cod Bay, and then headed back for the formal opening ceremony at Bourne. On its return trip through the canal, however, the Standish got swept up by the current, now running westward, and was unable to dock at Bourne to allow its guests to go ashore for the dedication ceremonies. Reid gave this account:

The Standish did not even get within line-throwing distance of the pier, and swept grandly past with her engines going full astern. The captain had to continue out into Buzzards Bay, where the current slacked off and he found room to turn. So the Standish, somewhat sheepishly, we may imagine, came back, breasting the current, got a line ashore, and finally tied up.
This unfortunate incident marred an otherwise impressive spectacle and allowed naysayers to raise once again the question of whether it would have been wiser to build a canal with locks. But at the formal opening ceremony later that afternoon in Bourne, Belmont was justifiably proud. “We have finally cut a channel eight miles across this isthmus and five miles into Buzzards Bay,” he declared. He then thanked his staff, first among them Parsons, whom he called “resourceful and tireless.” Toward the end of his address, he even allowed himself some sentiment. “We have been building the greatest life-saving institution on the Atlantic,” he said, “and through our efforts the historic graveyard of the coast may be closed. Personally, should it serve no other purpose than the saving of thousands of lives from perishing off the Cape, I shall feel my own efforts are repaid.” The canal opened for business at 8 a.m. the following day, collecting $51 in fees.

The canal delivered by Belmont and Parsons was 7.68 miles long, 100 feet wide at bottom and 15 feet deep. The approach channel in Buzzards Bay was five miles long, making the entire channel 13 miles long. A 3,000-foot breakwater had been built in Cape Cod Bay, one railroad bridge and two highway bridges were built, more than seven miles of railroad track had been rebuilt for the Old Colony Railroad, and more than four miles of highway had been relocated and rebuilt. The total cost of the work was $16.1 million, according to the New England Division of the U.S. Army Corps of Engineers.
Assessing the Project

Parsons gave a candid assessment of the project in his 1917 paper to the American Society of Civil Engineers, acknowledging mistakes in not using more modern and more powerful equipment, particularly steam shovels, earlier in the project.

A large piece of work teaches lessons of two classes: successes and mistakes. The second class is quite as important as the first, if not more so. The lessons of the first class usually need no historian, for they always speak for themselves, whereas those of the second class are too frequently buried and lost sight of. The work of excavation of this canal…is not without lessons of the second class.29

The canal, at 15 feet deep, was still 10 feet short of the 25-foot depth specified in the charter, and 20 months of digging was required before the required depth was reached in May 1916. It was not until January 1918 that the Massachusetts Waterways and Public Land Commission declared the canal completed in accordance with the provisions of the charter, according to the New England Division of the U.S. Army Corps of Engineers. During 1915, its first full year of operation, 2,689 vessels used the canal. The following year, the number of ships using the canal doubled, to 4,635. Even so, the canal was not a commercial success for Belmont’s enterprise in its first years of operation. According to Reid, during its first four years the canal did not show a profit, as mariners, for various reasons, did not use the canal in the numbers predicted. One reason was the strong tidal current, which, with an average maximum velocity of 4 knots, troubled some mariners. The canal was narrow and accommodated marine traffic in only one direction at a time. Moreover, a ground fog developed in Bourneale, making navigation even more difficult. Reid wrote:

Mariners had a very strong legitimate complaint on the narrowness of the channel and, more particularly, the hazard—both real and imagined, of passing through the three bridges…And, finally, there was just the plain stubbornness of some of the old captains…The backside of Cape Cod might be dangerous, but they knew it and its waters; they didn’t know the canal except, in many instances, by hearsay, and they wouldn’t use it. The canal was not prospering.30

The canal didn’t completely fulfill its promise until it was acquired by the federal government in 1928, widened, lengthened and improved to what it is today.

Government Ownership

Belmont and Parsons foresaw that the canal would be of military importance to the U.S., and they were proved right just four years after the canal opened, when the federal government seized it on July 25, 1918, after a German submarine surfaced three miles off the coast of Cape Cod and shelled a tugboat and four barges. Belmont’s
company resumed ownership of the canal in March 1919 and negotiated its sale to the federal government for 11 years, finally consummating the sale in 1928, four years after Belmont’s death, for $11.5 million.

Improving the Canal

The U.S. Army Corps of Engineers in 1935 began an ambitious program to widen, deepen and straighten the canal, encountering many of the challenges that Parsons faced two decades earlier. “The engineering problems that Mr. Parsons had to overcome were certainly known but probably never fully appreciated until the improvements were undertaken,” according to Reid. “The boulders the engineers encountered when sinking the sixty-two-foot foundations for the railroad bridge caused them to reconsider the project.”

By 1940, when the improvements were complete, the Corps had widened the canal to 700 feet at the surface and 480 feet at the bottom, making it the widest artificial sealevel canal in the world. The canal was lengthened from 13 miles to 17.4 miles, mostly by adding two approach channels in Buzzards Bay (the land cut was lengthened only slightly, to 8.6 miles, from the 7.68 miles under Parsons’s plan). The canal was now 32 feet deep at mean low water, compared to the 25 feet of the original canal, and the Army Corps had removed 39 million cubic yards of earth, compared to 15 million cubic yards for the Belmont-Parsons canal. The Corps also built three new bridges to accommodate the greater width of the canal. (One of those bridges, the railroad bridge near Buzzards Bay—at the time the longest vertical-lift bridge in the world—was designed

The Buzzards Bay railroad bridge was designed by Parsons’s firm, Parsons Brinckerhoff, and opened in 1935. At the time it was the longest vertical lift bridge in the world.
The Cape Cod Canal as it appears today. Buzzards Bay is in the foreground. The Buzzards Bay railroad bridge and Bourne highway bridge are also visible.

by Parsons’s firm and opened in 1935.) The improvements undertaken by the Corps, plus the elimination of tolls, made the canal far more desirable to mariners. By 1940, three times as many ships and eight times as much cargo were going through the canal as had under the last year of ownership by Belmont’s company.

An Engineering Landmark

The Cape Cod Canal was named a National Historic Civil Engineering Landmark by the American Society of Civil Engineers in 1985. During the dedication ceremony, a plaque honoring Parsons was unveiled. Col. Thomas A. Rhen, the head of the U.S. Army Corps of Engineers in New England, said the designation of the canal as an engineering landmark “commends the vision and foresight of men like Parsons and Belmont.”
Chapter 7: Building His Business

Parsons’s work on the Cape Cod Canal occupied much of his time between 1906 and 1914, but he and his firm also undertook a number of other projects during that time. In the years immediately following his work on the subway, Parsons’s firm consisted of only a few engineers besides himself, but even then he had a larger vision, as well as a sense of humor. After signing his first major contract and showing his client to the door at his small two-story office at 60 Wall Street in downtown Manhattan, Parsons dramatically called up to his associate, Soren Thoresen, on the second floor: “Thoresen, put the whole staff to work right away on this job.” Thoresen, who had joined Parsons in 1905, turned to his sole colleague and said, “Go to work, Andy.”

Advising on Transit

As a result of his work on the subway, Parsons was a recognized and much sought after expert on transportation engineering. His reputation extended to England, and, in 1904 and 1905, he was a member of the Advisory Board of Engineers for the Royal Commission on London Traffic, the lone American on a panel of distinguished British engineers. The Commission, appointed by the British government, examined “all the details of London traffic, both railway, surface and underground, vehicular traffic, new and widened streets, and other similar questions,” according to Parsons, who was later made a Director of the District Railway of London. In 1908 he became the first American awarded the Telford Gold Medal; he was cited for his paper, “The New York Rapid-Transit Subway,” which he read before The Institution of Civil Engineers in London. A lifelong Anglophile, Parsons considered the Telford Medal one of his greatest honors.

For the city of Chicago, Parsons served as Chairman of the Chicago Traction and Subway Commission, which prepared “a broad plan for the unification of the surface and elevated lines, combined with subways in such a manner as to work towards an ideal traction system for the City of Chicago.” The commission, in its 1916 report, “Unified System of Surface, Elevated and Subway Lines,” recommended that a single entity be created to oversee both surface and elevated lines. The commission also suggested that “construction of a combined system of subways and elevated railroads be begun at once” and outlined an immediate nine-year building program together with a financing plan for a “continuous building program up to 1950.”

Parsons’s firm advised cities throughout the United States on the development of rapid transit. The firm prepared studies and reports for Cambridge, Massachusetts (1907), Washington, D. C. (1910), San Francisco (1905 and 1911), Detroit (1913–22), Philadelphia (1918–1925), Cleveland (1919–1929), Atlanta (1922), Boston (1926), Newark, New Jersey (1926–27) and Westchester County, New York (1924–27).
The Panama Canal

In March 1904, while still serving as Chief Engineer to the Board of Rapid Transit Railroad Commissioners, Parsons was appointed to the first Isthmian Canal Commission and visited Panama to observe the canal begun by a French company. “In my judgment, the construction of the canal is perfectly feasible, and when constructed the canal can be successfully operated,” he told The New York Times upon his return from Panama in April 1904, dismissing widespread concerns about health conditions. The Times quoted him as follows:

I had never been on the Isthmus before, but from all accounts had expected that the climate would be exceedingly disagreeable, and with health conditions that could be improved only at great expense. In both these respects I was agreeably disappointed. I am confident that with a supply of good water furnished both to Colon and Panama, and with a complete system of sewers, supported by proper sanitary regulations vigorously enforced, both of these cities can be made healthful places of residences.4

From the beginning, Parsons was a forceful advocate of building a sea-level canal, rather than one with locks. During a speech to the American Geographical Society in December 1904, he said:

Obviously if a canal can be constructed without locks, such is the desirable type, so that steamers can proceed from one ocean to the other with but the single check of the tidal lock on the Pacific side, and it will be the aim of this commission either to secure that desirable end or come as near to it with the lowest summit level possible.5

Subsequently, on June 24, 1905, Parsons was appointed to the Board of Consulting Engineers for the Panama Canal, which advised President Theodore Roosevelt on the best means to build a 40-mile-long canal across the isthmus of Panama. The board voted 8-5 in late 1905 to recommend a sea-level canal without locks. On January 10, 1906, the “Report of the Board of Consulting Engineers for the Panama Canal” was submitted to Roosevelt. It recommended a sea-level canal at a cost of $247 million, to be completed in 12 to 13 years. The board, which looked to the sea-level Suez Canal as a model, stated that a sea-level canal would ensure that “…transit between two oceans shall be secured in a permanent manner for all time under the best conditions for navigation and safety…”6

However, a minority report of the board, which was endorsed by the Isthmian Canal Commission and its Chief Engineer, recommended a lock canal 85 feet above sea level that would cost $107 million less to build and take only nine years to construct. Referring to the lock canal, the commission’s Chairman, T. P. Shonts, wrote:
“...the canal proposal by the minority of the Board of Consulting Engineers can be built in half the time and in a little more than half the cost of the canal proposed by the majority of the board, and when completed it will be a better canal...” Roosevelt favored the minority proposal and in February 1906 recommended to Congress a canal with locks.

The stage was thus set for a war of words among the experts, and Parsons enthusiastically joined the fray. In March 1906, he appeared before the U.S. Senate’s canals committee in support of a sea-level canal and “denounced with notable conviction virtually every feature in the lock proposal,” wrote David McCullough in *The Path Between the Seas*. A Senate committee reported in favor of the sea-level plan, but the entire Senate voted 36-31 in June for a lock canal, which was completed eight years later, in 1914. A sea-level canal “in all probability would have ended in terrible failure,” according to McCullough, who noted that George Goethals, the Chairman and Chief Engineer of the second Isthmian Canal Commission and later Governor of the Panama Canal once said that “there was not money enough in the world to construct a sea-level canal at Panama.” Other experts, however, told Roosevelt he had made a terrible mistake in siding with the proponents of a lock canal.

Parsons continued to believe fervently in a sea-level canal and with the Cape Cod Canal he proved that a sea-level canal was feasible.

**Hydroelectric Projects**

In the years following the subway, Parsons resumed his interest in hydropower. “Parsons had an idea that peak power could be furnished more cheaply from electric power than from steam plants,” recalled John P. Hogan, a partner in the firm from 1926 to 1947. “He was unable to sell this idea to steam-minded utilities so he promoted and constructed a peak power hydro-electric plant on Garoga Creek in New York.” That plant, at Ephratah, New York, completed in 1911, was at the time the “highest-head water-power plant in the East, utilizing a fall of 300 feet” and “introduced such modern devices as surge tank and a pressure-relief valve,” according to a biography of Parsons written by his partners and published in *Transactions of the American Society of Civil Engineers*. The success of the Garoga Creek plant led to the design and construction of an even larger hydroelectric plant (24,000 horsepower) on the Salmon River near Altmar, New York, from 1912 to 1914. Earlier, Parsons’s firm had served as consulting engineers for the design and construction of a 100,000-horsepower hydroelectric project on the Susquehanna River at McCalls Ferry, Pennsylvania from 1905 to 1906 and designed and supervised the construction of a 3,000-horsepower hydroelectric plant at Colliersville, New York, also on the Susquehanna River, during
1906 and 1907. Another notable project was the design, construction and operation of dams and a power house at Fort Plain, New York, for the Mohawk Hydro-Electric Corporation, from 1908 to 1910.11

**Latin American Projects and the Tuskegee Institute**

During the early years of the 20th century Parsons and his firm were active in several projects in Cuba, including the Almendares Bridge in Havana, a reinforced concrete bridge of multiple arches designed by the Parsons firm and completed in 1910. The firm also designed and supervised the construction of the first all-reinforced concrete docks in the Western hemisphere for the Port of Havana Docks Company and in 1913 and 1914 prepared a report and plans for the reclamation of 500,000 acres of the Zapata Swamp near Cienfuegos for agriculture. The firm also designed a steamship pier in Port-au-Prince, Haiti, and a yacht pier in Glen Cove, Long Island, the latter for financier J.P. Morgan.

Parsons prepared a plan for a harbor at Progresso in the Yucatan peninsula that was never built because of the Mexican revolution of 1910, but it was perhaps that experience that prompted him to encourage the Carnegie Institution, of which he was a trustee, to undertake groundbreaking research into ancient Mayan culture.

From 1908 to 1911 Parsons’s firm designed and supervised the construction of a water supply system from deep wells for Booker T. Washington’s Tuskegee Normal and Industrial Institute (later the Tuskegee Institute and now known as Tuskegee University) in Alabama. Parsons, who was friendly with the noted African-American educator, performed the work on the school’s water and sewerage systems *pro bono*. 
Parsons's contribution to the New York City subway was undoubtedly his greatest accomplishment, but his service as an officer in World War I in France was his most exhilarating adventure. Fifty-eight years old when he entered the war, he repeatedly assured family and friends that he was having the time of his life. Nonetheless, Parsons found the army far more political, bureaucratic and inefficient than he anticipated, and he was frustrated, at least initially, by his frequent idleness and inability to secure the kind of position he believed his experience and background warranted. He often felt he was not being used to his full potential, and he attributed his thwarted ambitions to the tensions between officers of the regular Army and volunteer officers. It was not until May of 1918, one year after arriving in Europe and six months before the end of the war, that Parsons finally achieved his goal of commanding an engineering regiment.

Parsons served with the Eleventh Engineers, a volunteer regiment that gained widespread fame when, while attached to the British Army and working unarmed on railroads near the front, they were suddenly attacked by the Germans. Some of the American engineers (Parsons was not among them) grabbed picks, shovels and weapons from their fallen comrades and fought the Germans in hand-to-hand combat, earning the sobriquet, “the fighting engineers,” for their regiment. The Eleventh Engineers are also credited with being among the first U.S. regiments to land in France (the Fifteenth Engineers was the other), the first to be reviewed by the King of England, the first to be called to active service, the first to come under enemy fire, the first to have had men taken prisoner, and the first to suffer casualties. The regiment Parsons said his wartime service in France was “the most exciting and interesting episode in my life.”
was lionized upon its return to New York after the war, and Parsons, who served as a Major, Lieutenant Colonel and Colonel during the war, was later promoted to Brigadier General in the Reserves.

Parsons was not the only member of his family to serve in France. His wife, son and future daughter-in-law served in various capacities, and three other members of the Parsons-Reed family also took part in the war effort. His wife, Anna Reed Parsons, who once wrote that she would “feel like a slacker if I stay behind,” volunteered with the American Red Cross in Paris and became one of the directors of the organization’s Women’s War Relief Corps. She organized an orphanage at Etretat and later worked with the American Red Cross Hospital No. 2. Parsons occasionally was able to spend time with his wife in Paris when his duties required his presence there. His son, Dr. William Barclay Parsons Jr., known as Barclay, served with a unit of New York’s Presbyterian Hospital that was attached to the British Army at Etretat and later with the Presbyterian Hospital’s Mobile Hospital No. 2. He attained the rank of Captain and was in some of the same engagements as his father, including Cambrai, St. Mihiel and Meuse-Argonne. Rose Saltonstall Peabody, who married the young Parsons in 1919, also worked at the orphanage at Etretat and at Mobile Hospital No. 2. The members of the Parsons family in France corresponded regularly with each other and with Parsons’s mother and daughter Sylvia Parsons Weld. Following the war, Sylvia Weld published the collected letters of Parsons, his wife, son and daughter-in-law, in a volume called *War Letters*. Parsons also corresponded regularly with his friend, Nicholas Murray Butler, the President of Columbia University (Parsons was then Chairman of the Board).

**Organizing the Engineers: 1915 – April 1917**

Parsons was involved with the American war effort from the very beginning, and he was no stranger to the military, having served as Chief of Engineers of the New York National Guard, with the rank of Brigadier General, during the Spanish-American War of 1898. Prior to the beginning of World War I, Parsons served as Chairman of the Joint Commission of Engineering Societies, which sought to create a reserve of engineers modeled on the Medical Reserve and saw its efforts rewarded with the formation of the Officers Reserve Corps in 1916. Parsons was convinced that the U.S. would eventually be drawn into the war. “During the first two years of the war,” he wrote, “the great majority of the American people deceived themselves with the comforting belief that the Atlantic Ocean separated them so effectually from European politics” that the role of the U.S. would be limited to supplying the Allies. “The people could not see that mighty forces beyond their control…were slowly but inexorably drawing them into the conflict.”
In 1915, a year after the war had begun but well before the United States declared war on Germany, Parsons told *The New York Times* that there were only about 250 engineer-officers in the U.S. Army, and that “these men would be but a handful to the number of engineers that would be required if our country were called upon to fight a war.”

In February 1917, six weeks before the U.S. entered the war, Parsons was asked by the chief of engineers of the U.S. Army to organize a reserve corps of engineers in New York. With the United States’ declaration of war on Germany on April 6, 1917, the War Department called for nine regiments of engineers, more than 1,000 men in each regiment, for a total of 10,000. Parsons was commissioned a major in the Engineers Officers’ Reserve Corps and assigned to a regiment originally called the First Reserve Engineers, U.S. Army. The name later changed to First Engineers, National Army and then to Eleventh Engineers (Railway), U.S. Army, but the regiment was most commonly known simply as the Eleventh Engineers.

Recruiting for the regiment began on May 9, with the rallying cry, “First to France—Join the Engineers.” The enlistment of the regiment was completed later that month, with 1,182 of more than 6,000 applicants accepted. “Young college men and trained engineers of long experience and high standing in their field made up a large part of the regiment,” according to an article in the May 1919 issue of *Fighting Engineer*.

**The Parsons Commission: May – June 1917**

Parsons’s next assignment, following the organization of the Eleventh Engineers, was to head a five-man commission sent to France to assess the conditions of railways in France and make recommendations for the transportation necessary to support the U.S. Army in aiding the British and French. The Parsons Commission, as it came to be known, arrived in England on May 23—the first American Army officers to land in Europe. In a letter to his daughter, Sylvia, Parsons described the thrill he felt at taking part in the war effort:

> I am suddenly aware that people are looking at me, and then I realize that I am in [uniform] too. It all seems like a dream…I am now going about in army uniform, being saluted at every step…taking part and a very responsible part too in this war.

Parsons received a similar welcome in Paris. “The French gave us a royal reception,” he wrote in a letter to his mother. “I have been received by the Minister of War and other officers. Everything is at my disposal.” On June 1, Parsons was invited to lunch by the commander of the French forces at the French Army’s headquarters in Compiegne. He described the scene for his mother:
We sat down sixteen to luncheon, ten of whom were French. Of the ten, six were generals of the highest rank. Of course, everybody was in uniform...It was an extraordinary scene and very hard for me to realize that I was sitting alongside of men who controlled the great combined army of England and France...I consider it the greatest hour that I have ever spent.5

The Parsons Commission issued its report on June 21. Parsons expanded on his report in what he called a “personal and not an official letter” to Brigadier General William M. Black, Chief of Engineers. Parsons told Black that the Army needed men “of the very biggest caliber, men with imagination...they must be men of the world, or what is usually called a gentleman.” He also argued that Americans would have to adapt to European customs.

Over here much is accomplished at luncheons and dinners. The average American is inclined to think that they are simply a waste of time. They are not. The direct American way of doing business is not the custom over here...whenever possible send people who can speak French. I assure you that it makes a lot of difference.6

Parsons traveled extensively in France to prepare his report, and he was astounded at the scale of the war. “I have seen some big things and some interesting things but nothing which in either bigness or interest can compare with this,” he wrote to Nicholas Murray Butler on June 25.

The size of it can only be realized by one who comes here and looks at it. I have been over part of the British front from Peronne to north of Arras and on the French front from Verdun west to Chalons...North of Arras I was with a battery that was being shelled by the Germans. The British told me that the Germans were about five miles away and yet so accurate was their fire that shell after shell was dropping within a square not exceeding one hundred yards...One curious thing was that the men who were out of the immediate range never turned their heads when these big shells exploded. One can get used to anything.7

Parsons was shocked at the destruction he witnessed, and he railed against what he saw as the unnecessary devastation perpetrated by the retreating German Army.

The country of Arras is the most completely destroyed thing imaginable...If you know that section of France, it was a gently rolling country with every square inch under cultivation or nicely kept woods and with little villages dotting the whole scene...Today that country is a howling wilderness...what got my anger was to see the few trees in a little orchard either chopped down or if there were not time to destroy them, girdled so that they would be killed.8
Army Headquarters in Paris: July 1917

Following the completion of his report, Parsons was ordered by General John J. Pershing, the commander of the American Expeditionary Force, to join his headquarters in Paris, but he was frustrated by the bureaucracy, politics and delay he encountered there. “Not that there is nothing to do, but that there is so much to do, they cannot decide what I am to take up first,” he wrote to his daughter Sylvia on July 5.9

A week later, he complained that there was “no evidence of system, organization or team work.” In his diary entry for July 13, 1917, he wrote: “Unless some change would prefer to go with my regiment, because I fear that I would have my hands tied all the time and that before long there will be a blow up here.” Two days later, he wrote that he had been in Paris for a month “and still no orders” although he was promoted to Lieutenant Colonel. He told his superior officers that he wanted to join his regiment, and was finally ordered to do so on July 27. “The relief of getting out of this Paris atmosphere is tremendous,” he wrote in his diary on that day.10

With the British Army: August 1917 – January 1918

Parsons left Paris on August 1 for London to meet up with his regiment, which had reached England on July 28. Parsons and the regiment arrived at Boulogne, France on August 7, where Parsons, in the absence of the commanding officer, Col. C.H. McKinstry, led his men through Boulogne, the first regiment of the American Army to land in France.

The regiment was initially assigned to the British Expeditionary Force and on August 18 arrived in the advance zone in the Somme Valley (the scene of the horrific
Battle of the Somme the year before) to do railway work near Peronne in northeast France, near the Belgian border. An Army publication described the challenges facing the American railway engineers in France:

The battlefront was hundreds of miles from the ports. Railroads, crowded with war traffic, were breaking down. The needs of the civilian population, the lack of equipment, and, in some cases, the lack of track caused much congestion. Combat was going on in a thickly settled and intensely cultivated part of the country where property rights, road patterns, and communication lines made new rail construction difficult.11

In a letter to Butler, Parsons described the devastation he witnessed in the Somme region. “Every village has been completed destroyed in nearly every case willfully by the beasts as they retired. (I say beasts deliberately, because they have violated the local cemeteries, scattering pieces of coffins and the bones of their occupants.)” He contrasted the destruction caused by the Germans with the decency of the British, who he said gave the German dead “exactly the same care as their own…To the everlasting credit of the British and the French, although evidences of German frightfulness are [everywhere], not a German grave has been touched, not a cross touched.”12

The regiment’s first major assignment was to support a planned offensive on Cambrai, an important rail and road hub. The American engineers built and repaired rail lines and placed fleets of tanks in position to support the planned offensive. “Our work is the maintenance of about 125 miles of track and some of it lies in front of the British guns and within 1½ miles of the German trenches…the German lines are of course in plain sight,” Parsons wrote to Butler.13

It was not long before the regiment was actively engaged in the fighting. Company F of the Eleventh Engineers was the first American unit to come under enemy fire, on August 28. On September 5, two men of the regiment were wounded by a shell that exploded near them while working at Gouzeaucourt; these were the first battle casualties of the American Army.

Parsons, however, still had no firm orders, and in his diary wrote repeatedly of his frustration at his idleness. As of mid-September 1917 his only assignment was to keep a “war diary” requested by a superior officer, and to serve on an Army disciplinary panel hearing courts-martial. On September 17 he wrote in his diary of “reading Army regulations for something to do.”14 He quietly seethed at his idleness, and openly sought a job with more responsibility. He actively lobbied for the job as the Army’s engineer of construction, but it was not offered, and he chafed at being under the command of Col. G. M. Hoffman, who gave him little to do and inspired little confidence. “I sincerely trust I can get a position elsewhere so that I can be of some use. Here I am none at all…I wonder how long I can stand it?” he wrote to his diary on September 26. “I came
abroad with the idea that I could be of great use, with my experience, knowledge of France, French language and general friends, but so far it has not been so.” On his final diary entry before leaving Plateau in northeast France in October 1917, Parsons wrote that it had been “a place to me of greatly mixed feelings…great expectations and disappointment.” Despite his diary protestations to the contrary, he was not without work or responsibility, but he clearly regarded his duties as not befitting his stature and experience. “Too bad that I am deprived of my ambition to command a regiment in France,” he wrote to his diary on November 27. “But I must bow.”

He occasionally struggled with loneliness and homesickness. In his diary entry of November 11 he wrote of attending a church service and being overwhelmed with feelings for his family.

The singing of the hymn for those on the sea nearly broke me down with dear Anna just entering the submarine zone [Mrs. Parsons was en route to France by boat.] and the prayer for those at home calling up my dear old mother with all her suffering left me no better. I cannot realize that my brother Schuyler is gone. [Parsons had received news of his brother’s death two days before.] Came back to camp…as I wanted to be alone…went for a walk, the dogs joining me for the first time, for which I was very glad.

The celebrated Cambrai offensive began on November 20 and initially was a great success for the British. The Eleventh Engineers were charged with relaying track on the main line of a railroad running into Cambrai, and a part of the regiment was ordered to assemble immediately behind the attacking British. Parsons described the Cambrai offensive in an article he wrote for The Evening Post Magazine:

The attack was successful beyond expectations. The Germans were completely surprised. By two o’clock on the same afternoon [Nov. 20] I personally was a mile and half beyond the Hindenberg line. The British attack continued until Nov. 22…the British had gained six miles, had captured 11,000 prisoners, and had inflicted heavy casualties.

In a letter to Butler dated November 29, Parsons described the Cambrai offensive in more personal terms, and rejoiced in the victory. “A big battle is really great sport. One loses all sense of personal danger, so engrossing are the great movements.” He described a battle that he witnessed the previous day with his son, Barclay.

The British shells were passing over head while German shells were dropping in all directions. In discussing the terrain with the engineer we had been careless in producing a map, which had probably caught the eye of a lookout at the end of a telescope. The first shell fell in front of us about 400 yds. To that we paid no attention. About 3 minutes later another fell 200 yds away directly in line with the first.
That looked suspicious. When 3 minutes again another came also in line and only 100 yards away, we left. It was really very bad shooting. I admit that we were careless, but two sighting shots should have sufficed to get us on the third.20

But the British victory was short-lived. The Germans launched a counter-attack 10 days later, on November 30. On that day men of the Eleventh Engineers, along with the 4th Canadian Railway Battalion, were working, unarmed, on a railway yard near Gouzeaucourt. The German attack came as a complete surprise. In his article for The Evening Post Magazine, Parsons described the battle that earned the appellation “the fighting engineers” for his regiment:

Our men, suddenly surprised at their work, were without arms… the gray-clad German forces were seen rushing up the road. Hurriedly a miscellaneous force was gathered to stem the advance. Seizing picks, shovels, the few rifles they could find—anything—the Americans joined what British infantry was available. The defence took the form of hand-to-hand fighting, the Americans and British battling desperately to halt the Germans, greatly superior in numbers… It was the first real fight of the war in which American forces had taken part… Finally the British straightened their lines by giving up part of the territory they had gained and leaving our rail connection in German hands.21

Six men were killed, 13 wounded, and 11 taken prisoner in the American Army’s first engagement with the German Army. As a result of the German offensive, the rail line between Epehy and Marcoing that the Eleventh Engineers had helped build ended up in “No Man’s Land” between the two fronts before it could be used by the Allies. In a later account of the battle at Gouzeaucourt published in his book, The American Engineers in France, Parsons acknowledged that “the picturesqueness of men fighting successfully, hand to hand, armed only with their tools against rifles and bayonets, undoubtedly… went a longer way than perhaps the incident justified, towards establishing American prestige.”22

Parsons had great admiration for the British soldiers with whom he served. “This British army is grand,” he wrote to Butler about the battle of Cambrai.

If you could only have seen the wounded being taken from the field. Even those terribly wounded, without a complaint. They never brag, they never boast. In victory or in trouble they are always the same. Let me give you one little incident. During the first day of the fighting [November 20] when I knew that I should be exposed, I took with me my flask full of whiskey in case of need. The need quickly came, too many cases unfortunately. Finally there was but one drink left which I reserved for a really bad case. I found it in a man with an ugly head wound sitting by a road waiting for an ambulance. I gave it to him. ‘Thank you
Sir.’ He took part only, then he handed the cup to a man sitting by him, saying, ‘Here, matey ’alves with you.’ The other was wounded slightly. The British soldier is a wonderful specimen and it will always be my joy and source of endless pride that I have been with him on the field of battle.\textsuperscript{23}

Parsons also had deep admiration for the French and sympathy for how they suffered. He wrote of seeing an old couple that had obtained a permit to visit the devastated Somme country in search of their home. “They found what the Boches had left of it,” Parsons wrote, using a slur to describe the Germans. “The mute simple agony of that poor old woman’s face will always haunt me.”\textsuperscript{24}

Following the war, in \textit{The American Engineers in France}, he argued that, as grateful as the French were for American assistance, “they knew quite well that America was fighting its own and not France’s battle and…that America was struggling with and not for France.”\textsuperscript{25}

Although he was at least peripherally involved in the Battle of Cambrai, and saw much of the action firsthand, Parsons was still frustrated at his lack of responsibility. “My position and idleness here is telling on my nerves…Can I stand the waiting, the inaction much longer?” he wrote to his diary on December 23.\textsuperscript{26}

**With the American Army: January – March 1918**

The Eleventh Engineers remained with the British Army until January 1918, when they were ordered to join the American Army in central France. There, the Eleventh Engineers built railway lines and yards between the ports and the American front in the Army’s Services of Supply.

Parsons’s fortunes began to improve in January 1918, when his nemesis, Col. Hoffman, was transferred from the regiment and replaced as commanding officer by Col. Herbert Deakyne, with whom Parsons enjoyed a better relationship. “Am dissatisfied of course at not getting promotion [to commanding officer of the regiment] but not nearly so disappointed as when Hoffman was appointed,” Parsons wrote in his diary on January 17.\textsuperscript{27}

But he was still subject to the uncertainties and vagaries of war. In a letter to his 86-year-old mother written on February 17, he described his role in supervising the construction of a rail yard. “Our work is very extensive,” he wrote with obvious pride. “We are to build a large, very large railroad yard…I have been put in charge of the work and will from now on find myself very busy.”\textsuperscript{28} However, the very next day, Parsons received word that “an entirely new plan was being prepared…and that until such plan was received that no lands would be taken and we were to confine ourselves to building side track.” He summed up his feelings in his diary entry of February 19:
We have been here [Chateauroux] 3 weeks today and have not done a single [piece] of useful work. No plans, no lands, no plant... There is no leadership, no efficiency, no decision, no action. A great disappointment. As evidenced by our being buried down here and no work to do!29

Parsons’s hopes to command the regiment were raised and dashed twice in late March and early April 1918, but he took both disappointments with good humor. On March 25, Col. Deakyne was transferred out of the regiment and replaced by Parsons as commanding officer. “Went over to the office and assumed duties of ‘C.O.’ at last!” Parsons wrote in his diary that afternoon. “I have issued no order assuming com-

mand.” It was good that he did not, for at 3 p.m. he received a message that Deakyne was returning to the regiment. “My reign was short,” Parsons wrote in his diary that evening.30 About a week later, Parsons was again put in charge of the regiment due to Deakyne’s absence, this time for a day and a half. “I seem fated not to hold the command, although I am improving. Last time it was six hours, this time 32 hours,” Parsons wrote in his diary on April 2. But still he complained of an “entire lack of order, system and direction.”31

**Back with the British: April – June 1918**

In late March, when a big German offensive began, the British again asked for the help of the American engineers. The Eleventh Engineers joined the First British Army in early April, and served with it through mid-June, in northeast France. Parsons and
his regiment were much busier at the British front than they had been in central France with the American Army, and Parsons was pleased with how the trench building work he supervised was proceeding. He described the work in his article for The Evening Post Magazine:

Our first duty was to build trenches and other defence works just behind Arras. After a month we were moved further north, just south of Bethune, to engage in the same kind of work. During the two months we were there we built about thirty-six miles of complete trenches, six feet deep, with fire-steps, machine gun posts, dugouts, tunnels, drains, all other details of trench construction. We also put in about seven miles of heavy wire entanglements.32

Parsons further described his experience at the British front in a letter to Butler:

I am quite close to the line and actually under fire day and night. Last night there were some five air attacks on our camp. During the day yesterday I had to turn back from a road I was following because the Boches suddenly began shelling it directly ahead of me. Since we came North 8 weeks ago our regiment has suffered a number of casualties I am sorry to say.33

But Parsons found life at the British front more to his liking than the “peaceful railway building” he had been doing with the American Army in central France.34 In his diary entry for May 8, he mused about traveling on the Arras-Cambrai road in peacetime with his wife and daughter en route to Berlin. “How little I foresaw then that the road would [be] the greatest battleground of history and in that battle I would take part.”35 In the midst of the fighting, Parsons recorded in his diary his observations of how the French farmers struggled to continue their day-to-day life despite the war.

As we were going about [inspecting trenches], we saw young girls going to the First Communion dressed in white and refugees with their household belongings packed in carts abandoning their homes…All this within 4 or 5 miles of the front lines, and shells constantly passing in both directions.36

In a letter to his mother he wrote: “The calmness of the French people is extraordinary…There is no end of courage here, and what is more a splendid quiet confidence.”37

Parsons assumed command of the regiment on May 16 with the promotion of Col. Deakyne to Director of Light Railways and Roads. Parsons, the fourth officer to command the regiment, continued as commanding officer until about three weeks before the armistice (November 11, 1918), when he was summoned to duty in Paris by the Army’s chief engineer. In a letter to his daughter, Sylvia, Parsons wrote:
I must tell you something my striker [assistant] said to me—"Colonel, all the boys hope there will be no more changes of commanding officers, but that when the time comes you will take us home." I once had all sorts of ambitions; they are all gone now. What I really want is to lead this regiment right up Broadway and 5th Avenue! 

Parsons got his wish, leading a jubilant parade of the Eleventh Engineers along Fifth Avenue on April 30, 1919.

**Again with the Americans: June – November 1918**

In early June, the regiment was ordered to rejoin the American Army. The Eleventh Engineers joined the First Army, where they built ammunition storage depots near Issoudun, in central France, and Chateau-Thierry, in the northeast. “Of course I am sorry to return,” Parsons wrote to his daughter Sylvia. “I like the excitement of the advanced zone. . .Of course, in the whirligig I may get back [to the front] just as I did before.”

But again Parsons was frustrated by the lack of urgency in the work the regiment was asked to do. “It is quite evident that we were not asked for and that work has to be found for us. This is the way we wage war!” he wrote in his diary on June 17. He also wrote of tensions between the regular Army units and the engineer regiments. “I do not want to believe it but the signs multiply of the narrow jealous antagonism of the regular machine. . .What a crime to throw away a whole year’s experience and reduce this unit to the level of a draft unit without experience,” he wrote in his diary on July 21. “But enough,” he concluded. “I am blue tonight, that is all.”

Despite his frustrations, Parsons believed that his men had faith in him. In his diary, he wrote that one of his officers, on leaving the regiment, told him that the “feeling in the regiment was never better, that the men were behind me because they felt that if the regiment should be in a tight place that the C.O. would be with them and [not] 20 miles away in some headquarters. I hope that it is true.”

Parsons continued to supervise a variety of tasks, including railway work and construction at an aviation camp, and he also scouted sites for an Army hospital. But he fretted that he and his men were not allowed to do more. When other units were ordered to the front, Parsons wrote: “Oh, if only we could go! It makes me very blue to feel myself and this regiment being wasted doing this small work. But perhaps our turn will come again.”

And so it did, just a few days later, when Parsons was ordered to report to the First Army’s headquarters at Neufchateau. There, he learned that what came to be known as the St. Mihiel offensive was to begin in September, and he was ordered to make reconnaissance of several rail lines. The Eleventh Engineers, which had by then nearly completed the ordnance storage depot at Issoudun, moved from central
France to the Argonne region, near the border with Belgium, Luxembourg and Germany, in early September.

**The St. Mihiel and Meuse-Argonne Offensives: September – November 1918**

Once in the Argonne, the entire regiment was engaged in building railways and reinforcing bridges in support of the St. Mihiel offensive, which began on September 12. “When the attack on St. Mihiel was planned we were again ordered to the front and attached to the First Army under General Pershing and are charged with constructing and reconstructing standard gauge railroad lines...This gives us plenty of excitement,” Parsons wrote in a letter to Butler on September 18, adding that the regiment “suffered a goodly number of casualties and...the Chairman of the Board [Parsons] had some narrow escapes.”

In a letter to his daughter Sylvia, Parsons wrote:

> I was here for ten days before the St. Mihiel attack was made, so I can say that I had a part in one of the most sensational and successful movements in the war. Of course I am glad to be back at the front...If you hear of fighting anywhere near Verdun, St. Mihiel, Metz, or that country, you may be sure that I am in it.

The battle known as the Meuse-Argonne offensive began on September 26. At 2 a.m. that day, “there was heard a sudden violent roar,” the beginning of what Parsons called “the greatest battle in history,” which he watched unfold from a hilltop near Vraincourt. “The noise was as grand and as awe-inspiring as the sight, and can perhaps be best compared with that of a wild ocean storm pounding on a gravel beach,” he wrote in *The American Engineers in France*. Parsons eventually made his way down into the valley through the ruined village of Courcelles “whose broken, jagged walls looked like gaunt specters in the moonlight.” At daybreak he returned to camp for “a hurried breakfast so as to be ready to execute the orders received as against this very hour.”
In support of the Meuse-Argonne offensive, the battle that ended the war, Parsons’s regiment worked on reconstructing rail lines, and laid a record 7,000 feet of track on October 16. In a letter to his daughter, Parsons described his activities in the Argonne region.

Sylvia, dear, your dear old Dad has been working overtime. I am up at 5:45, and on the steady go, talking shop even at meals, from that hour until 9 P.M., when I go to bed pretty well ‘all in.’ I am having, however, the time of my life. I wrote you about St. Mihiel; after that fight I was moved to just west of Verdun, on the eastern border of the Argonne Forest, and knew that a big battle was to come off, and it has been a big one! The fighting is fierce all the way from the North Sea to the Vosges, and, thank God, we are licking the Huns every foot of the way. I am engaged in building a new railway following the advance [of the troops], and, as you can imagine, I am working under tremendous pressure. My regiment has again suffered casualties, but you cannot work long under shell-fire without some one being hit…At all points we are steadily advancing…we all feel victory and final victory is at hand.

In a letter to his mother, Parsons acknowledged that his hair had whitened considerably and he had lost about 15 pounds during the war. “But every one says I have not looked so well in years, and I certainly feel so,” he assured her. “I sleep like a top, frequently walk fifteen miles or more, and am in the saddle four or five hours at a stretch.”

On October 9, Parsons received notice of his promotion to the rank of Colonel. “No promotion in the regiment was ever received with more general approbation than this one,” according to the account in the book, *History of the Eleventh Engineers United States Army.*

Ironically, just a week after being promoted to Colonel and three weeks before the end of the war, Parsons was ordered to report to the Army’s chief engineer in Paris for duty. “I am terribly downcast,” Parsons wrote after receiving his orders on October 17. “My ambition was to command my regiment. Now just as I reach my ambition [Parsons was named commanding officer five months earlier] I lose it. But there is one consolation. The end is near.”

The following day, he acknowledged—contrary to what he had written to his mother just 10 days earlier—that war duty, the politics of Army life, and the frustrations he encountered had finally taken their toll on him. “I am tired,” he confided to his diary. “I am losing weight steadily and do not sleep. This is not a game for 59 years old.”

The men of the regiment were sorry to see Parsons leave. “You have no idea how we feel, you have been like a father to this regiment,” wrote Lieutenant (later Captain) Van Tuyl Boughton, who, at Parsons’s suggestion, wrote the book, *History of the Eleventh Engineers.*
Parsons’s diary entries in the weeks before the end of the war repeatedly refer to the friction between regular Army officers and volunteer officers such as Parsons. He quotes one of his predecessors as commanding officer of the regiment as opining that Parsons’s desire to “get into the game” had worked against him, and that he would have been given more meaningful work in the U.S. by the Army Corps of Engineers. “Probably true,” Parsons wrote, “but I infinitely prefer what I have done. Had I to do it all over I would . . . do just as I did.”

Following his departure to Army headquarters, the regiment, under other commanders, remained just behind the front, “improving communications which would facilitate further Allied advances, until the armistice was signed,” Parsons wrote in The Evening Post Magazine.

Armistice Day, November 11, 1918, found Parsons in Paris, preparing reports at the American Army headquarters. He described the day in a letter to his daughter:

At 9:30 I went to the Army telegraph office to send a message and then learned the news that the Armistice was signed and that the war would be over at eleven. I am so glad I was here [in Paris] at the critical moment…I was here during the awful days at Easter, when the British line was breaking and Paris was being bombarded, and no one knew what would happen. Now here I am at the end. It has all been a wonderful experience, but like the French I feel too serious tonight to bubble over much. There are great problems ahead, possibly dark hours.

He rejoined his regiment on November 21, ten days after the armistice was signed.

After the Armistice: November 1918 - May 1919

The end of the fighting did not mean the end of work for the Eleventh Engineers, as they continued repairing and maintaining rail lines to ensure that rations and supplies reached troops still at the front. Rail lines in No Man’s Land also had to be repaired, and rail connections made between France and Germany. On November 25, 1918, the first through train from France to Germany since 1914 went over a section of railway repaired by the Eleventh Engineers.

Between December 26, 1918 and January 8, 1919, Parsons went to Belgium to make a special investigation and report for the Peace Commission. During his tour of the war-ravaged country, he was appalled at what he viewed as the unnecessary destruction of iron, copper and steel mills by the Germans before their withdrawal. Within days of beginning his inspection of Belgian industrial facilities, he wrote:

I have already seen enough to satisfy me not only of the extent of destruction but of… the deliberately conceived intent to destroy Belgian industrial life and future commercial competition. It impresses me as being infinitely worse than anything to be found along the battlefront.
Parsons received the Order of the Crown from Belgium for his inspection work after the war.

He rejoined his regiment in late January 1919, near Bordeaux, where they awaited transportation home. In late February, the regiment was reviewed by General Pershing, the commander of the U.S. forces. "After inspection and as I was leaving," Parsons wrote, Pershing "seized my hand and thanked me for all that I did in the Argonne, and commented on my handling of the regiment. It was almost fulsome, although apparently sincere."58

There was not much work to be done in the regiment’s camp in the town of St. Andre de Cubzac, and little to do but wait. "You cannot imagine what an awful bore it is waiting about," Parsons wrote to Sylvia on March 4.59

It was another month before the regiment left France. Nearly 300 men sailed on the Santa Teresa, which left on April 11 and arrived in New York on April 23, followed by Parsons and the remainder of the regiment, about 1,000 men, on the Chicago, which departed on April 16 and arrived in New York on April 27. As it happened, Parsons’s last day in France was his 60th birthday. "I have some compensation in waiting [for a ship home],” he wrote in his diary for April 15. "I can say I was in the army and in France at 60.”60

Two weeks later, Parsons led the regiment down Fifth Avenue in a triumphant parade that he described as “one of the greatest hours of my life.”61

“Colonel William Barclay Parsons…received an ovation from one end of the line of March to the other,” according to The New York Times.62 The regiment later
marched to the Hotel Pennsylvania, where the men demanded a speech from Parsons, who addressed them for the last time. He spoke warmly of their achievements, reminded them that there would be more wars, and urged them to take part in the political process.

...let us remember that we belong to the Eleventh, with its record second to none, and that it is the part of each one of us to live up to that record. You were willing to die for it; are you now willing to live for it?...But don't fool yourselves that there will be no more wars. Just so long as men are men, there will be wars and you will called upon again...But while waiting for the next war of arms, remember there is always going on the war of good citizenship...In your hands you have held the rifle and the pick, the weapons of the engineer; now you hold in your hands the ballot, the weapon of a good citizen. Use the latter as you have used the former, in the service of your country...

One of the first things Parsons did upon his return to New York was to meet with Governor Alfred Smith, who had offered Parsons the post of subway construction commissioner with a reorganized Public Service Commission, where he would have been responsible for all subway construction in New York. Parsons declined the offer. Although he did not intend to resume his career as a working engineer, he was eager to take up his duties as Chairman of the Board of Trustees of Columbia University, and presided at a meeting of the board just a few days after his return to New York.

Parsons was relieved of his assignment with the Eleventh Engineers on May 2. A few days later, he gave a farewell dinner for his officers (57 of them) at the University Club. Following the dinner, Major W.T. Chevalier gave a glowing speech about Parsons. “I was quite overcome and could not speak,” Parsons wrote in his diary. “With this dinner the regiment comes to an end. It has been a great experience, and one that I would not have missed for anything.”

In his final entry in his war diary, Parsons wrote that while he was happy to be home, he felt a deep sense of regret that “the most exciting and interesting episode in my life is at an end.”

Three years later, Parsons was promoted to Brigadier General and named Deputy Chief Engineer of the Reserves. “My new job will not be a sinecure,” he assured Butler. “I can give to it just as much time as I want to give. The minimum will require considerable, but I shall be glad to do this on account of my interest in the problem and my belief in the necessity of accomplishment.” He also told Butler that while he was “much gratified at my promotion as recognition of what I had done in France,” he was also “sorry that it definitely severs me from my regiment,” which he had reorganized as a regiment in the Reserves. He wrote:
The rank of colonel is in my judgment the very best position in the whole Army. It is the highest rank that a man can have and still retain contact with the men. He is the highest one on whom rests the responsibility of the care of the men. If he takes his job as he should take it he very frequently develops the feeling that exists between a father and a large family, and as he lives in close contact with his men, the men themselves are quick to recognize and approve of the ‘old man’s’ efforts.\textsuperscript{66}

Indeed, the men of his regiment affectionately referred to Parsons as “the old Colonel” and his gravestone carries the title of Colonel rather than General.

In addition to the Order of the Crown of Belgium, Parsons received the British Distinguished Service Order, the Office of the Legion of Honor of France, and the Distinguished Service Medal and Victory Medal with five clasps from the U.S. for his wartime service. He and his regiment were credited with participation in seven battles, including the Battle of Cambrai, the St. Mihiel offensive, and the Meuse-Argonne offensive.

Parsons saw much of the carnage and devastation of war, and he described it vividly in his letters. But he also believed that the sacrifice demanded by war made men more public spirited. In a letter to Butler, he wrote:

\begin{quote}
War has its horrors, and God knows I have seen enough… But, Butler, these horrors have their compensations. Kind nature always makes a balance. I have changed my views of war, and I write this with the sound of the guns booming but a few miles away. Every man that survives will be a better man than he was before. He will be taught discipline, order, obedience; his courage, self reliance, character will have been strengthened. War is not all evil, it is making and training men to be better men, and they in time to make a better world.\textsuperscript{67}
\end{quote}
Chapter 9: After the War

Following his return from the war in 1919, Parsons, then 60 years old, resolved to spend more time on his personal and philanthropic interests. He remained active in his firm, and continued to build the business, although in the post-war years he functioned less as an engineer and more as adviser to his partners. “I shall not resume practice, certainly not on the active scale of old,” he wrote to Columbia University President Nicholas Murray Butler from France in 1918. “That will leave me much spare time, and I shall be glad to give liberally of it.”

He devoted much time to leading the Board of Trustees of Columbia University as well as his work as Chairman of the Joint Administrative Board of Columbia University and the Presbyterian Hospital that built the Columbia-Presbyterian Medical Center. In 1919 he signed a contract to write a book on the contributions of American engineers to the war effort, and by August of that year was hard at work on the manuscript that became The American Engineers in France. He spent much of the post-war years researching and writing Robert Fulton and the Submarine and his posthumously published masterpiece, Engineers and Engineering in the Renaissance.

Parsons’s firm moved to new offices at 84 Pine Street in November 1919, and changed its name to Parsons, Klapp, Brinckerhoff & Douglas. Eugene Klapp joined the firm in 1905; Henry Brinckerhoff in 1906 and Walter J. Douglas in 1909.

Hydroelectric Projects

In 1920 the Parsons firm began work on the Sherman Island powerhouse and dam on the Hudson River near Glens Falls, New York, for the International Paper Company. “The power house and dam were not supposed to be feasible, which for Parsons, at least, undoubtedly gave the project an extra appeal,” wrote Benson Bobrick in Parsons Brinckerhoff—The First 100 Years. The problem was that the dam and powerhouse needed to be built on ground that was mostly sandy but also rocky in parts. Parsons again teamed up with his brother, Harry, now working as a consultant after leaving the firm sometime in the early years of the century. Walter J. Douglas was put in charge, and Parsons hired experts in hydraulics and hydroelectricity. Still, there were skeptics. “I’ll stand on the banks of the Hudson and watch your plant float by,” jeered Hugh Cooper, a well-known engineer of the time, during a meeting of the American Society of Civil Engineers.

But the Parsons firm was up to the task. “The most elaborate plans ever made for harnessing the Hudson River are now well under way at Sherman Island,” wrote The New York Times in 1921 during construction of the complex, which involved building a railroad from Glens Falls to the site of the dam and a small town to house the 1,000
men who worked on the construction of the multiple-arch dam, powerhouse, spillway and a diversion canal five-eighths of a mile long. *The Times* described the work:

The new dam is unique in the fact that it is built on gravel and sand instead of rock, and is by far the largest ever raised on such a foundation. It has been necessary for the engineers to lay bare the bed of the river, after the manner of Moses at the Red Sea. With the water thus turned aside, an elaborate method of construction has been carried on which will give the dam sufficient resistance to withstand the rush of the river.

Another interesting feature of the work is a power canal five-eighths of a mile long, which will shunt the river around the dam to the power house further downstream. In other words, the Hudson is to be so efficiently harnessed that it may be driven at all seasons of the year more than half a mile outside its regular course.

The 50,000-horsepower plant and dam were completed in 1923. The firm also designed and supervised the construction of a 10,000-horsepower feeder plant at Glens Falls for the International Paper Company that was completed the following year.

During the post-war years, Parsons’s firm completed a number of reports on the feasibility of power development projects in New York State and Canada for clients such as the Niagara, Lockport and Ontario Power Company (1915), the Manitoba Power Company (1920), and the Union Bag and Paper Corporation (1923).
After the War

One such study was an “investigation and report on all available hydroelectric power sites in New York State, and the feasibility of their economic development,” performed for New York State utilities. This study, which would explore the hydroelectric potential of the Adirondack mountains and Hudson and St. Lawrence rivers, was begun by Parsons on January 1, 1920. On the same day, John P. Hogan, a member of the Board of Water Supply, resigned his position on the water board and joined Parsons as director of the project, managing the work out of Parsons’s office. Hogan described the work in an unpublished memoir he wrote in 1959:

By means of extensive field surveys the possibility was shown of creating or enlarging a number of lakes on the Adirondack plateau, which would be inter-connecting in such a manner that the water could be diverted to any of the principal tributaries, and peak power delivered from the plants on these tributaries at will at the period of greatest demand. Detailed plans of these various plants were also developed at various sites and the costs of the entire development estimated.

Following that report, in 1921 the Frontier Corporation (which was comprised of General Electric, the Aluminum Company of America and Dupont) “instructed Parsons to make a survey of the St. Lawrence development, and to enter into preliminary conversations with the Canadian authorities and organizations interested,” according to Hogan, who said that he and Parsons “reached a satisfactory basis of negotiation with the Canadians.” Parsons appeared before the New York legislature to urge adoption of enabling legislation that was signed by the sitting governor in 1922 but killed by the succeeding governor, Alfred Smith, who had vowed during his election campaign that he would repeal the legislation “on the grounds that the power be conserved for the people.”

Parsons’s firm also prepared a report on dam and power development on the Colorado River near Diamond Creek, Arizona, in 1922; served as consultants for the design and construction of hydroelectric plants on the Hudson River for the New York Power and Light Corporation from 1924 to 1931; and designed and supervised the construction of the 40,000-horsepower Elmer J. West hydroelectric power plant on the Sacandaga River in Conklingville, New York, from 1927 to 1929, also for the New York Power and Light Corporation.

Shortly before Parsons’s death, his firm completed an addition to the Spier Falls plant on the Hudson River that he and his brother had collaborated on 30 years earlier.

The Later Years

Parsons officially retired in 1924 at the age of 65, although he remained a presence in the firm. “On most afternoons he could still be found in his office where, as the
pater emeritus of his family of engineers, he kept himself abreast of their work,” wrote Bobrick.10

Until his death in 1932, Parsons continued to be the personification of the firm and was actively soliciting business. Just nine months before he died he wrote to William T. Cosgrave, the first president of Ireland, whom he had met during Cosgrave’s visit to Columbia University, offering “the professional service and financial connection of my firm in the further development of the latent resources of the Irish Free State.”11

Meanwhile, his company, which in 1929 moved from offices at 60 Wall Street to a brownstone Parsons owned at 42 Maiden Lane, performed a wide range of work under the direction of partners Eugene Klapp, Henry Brinckerhoff, Walter J. Douglas and John P. Hogan. Among the firm’s most notable projects in the twilight of Parsons’s career were the Detroit-Windsor Tunnel, the world’s first underwater vehicular tunnel connecting two countries, which was completed in 1930, and a vehicular tunnel under the River Scheldt in Antwerp, Belgium, completed in 1932. Parsons proudly claimed his firm won the Belgian work in competition with 10 European firms. “The award was made not only for the excellence of the design but upon its economical cost,” Parsons said. “Our firm was the only one which presented a definite plan for financing the tunnels, although all competitors were requested to do so.”12
Chapter 10: Columbia and Carnegie

For 35 years, Parsons served on the Board of Trustees of Columbia University, his alma mater. For 15 of those years, he was Chairman of the Board, intimately involved with the management of the university and the development of the Columbia-Presbyterian Medical Center, which opened in 1928. His partner in the leadership of Columbia was the university’s longtime president, Nicholas Murray Butler. Parsons was elected to the Board in 1897 during the tenure of Butler’s predecessor, Seth Low, with whom Parsons was acquainted through his work on the New York City subway (Low was mayor of New York from 1901-1903) and his work in China. Parsons was elevated to Chairman in 1917, serving in that capacity until his death in 1932.
He was an activist Chairman and took an interest in a wide range of issues, including college athletics, engineering education, the establishment of Chinese studies at Columbia, and reining in what he viewed as radical professors and students. He was convinced that Columbia would become a leading research university, as it did during his tenure. “Our University is destined to be the greatest university on the American Continent,” Parsons wrote to Butler in 1907, “and it will become so by the force of circumstances and because it is a part of New York.”

Parsons and Butler

Parsons conferred regularly with Butler on matters of policy as well as procedure. He was deeply respectful of Butler but did not refrain from offering his opinions or urging Butler to follow his lead, and he was clearly influential. “Butler consistently deferred to [Parsons], never seems to have challenged him, even indirectly, and was gratified by Parsons’s friendship,” wrote Columbia historian Robert A. McCaughey in *Stand Columbia: A History of Columbia University in the City of New York, 1754-2004*. Together, Parsons and Butler presided over phenomenal growth in the size and prestige of Columbia. Described by Parsons as “a small and comparatively insignificant institution” when he and Butler were graduated in 1882 (Parsons from the School of Mines; Butler from Columbia College), by the time of Parsons’s death Columbia was a large and highly regarded research institution.

In 1927, in an editorial commenting on Butler’s 25th anniversary as President, *The New York Times* declared that “no other university in the world has had such growth in such a brief period…the growth in cultural influence, moral power and scientific scholarship of this institution is more than commensurate with the astounding increase in the number of students, physical equipment and financial endowment during this period.”

Butler led Columbia from 1902 to 1945, the longest tenure of any president of Columbia. Famously called “Nicholas Miraculous Butler” by Theodore Roosevelt, he was awarded the Nobel Prize for Peace in 1931 for his work on the Kellogg-Briand Pact outlawing war. Long active in Republican politics, he unsuccessfully sought the Republican nomination for President in 1920. He was influential in the establishment of the Carnegie Endowment for International Peace and served as its President from 1925 to 1945 and as President of the American Academy of Arts and Letters from 1928 to 1941. But he was also ridiculed as pompous, self-aggrandizing, autocratic and elitist. Often called the “Czar Nicholas” of Columbia, “from the beginning of Butler’s career until practically the day he died he was the subject of unremitting criticism,” wrote Albert Marrin in his 1976 biography of the Columbia president. Marrin argued
that “however greatly his accomplishments were respected, as a public man he was never really liked, much less loved. The image he projected was not lovable; it was the image of a cold, condescending, complacent man exuding a gravitas worthy of a Roman patrician.”

Butler was an influential president, and he clearly regarded Parsons as his partner in managing the university during the 15 years when their tenures as president and chairman coincided. At least three times during his tenure, Parsons suggested stepping down as Chairman, only to be forcefully opposed each time by Butler. During his service in France in World War I, just one year into his term as Chairman, Parsons wrote to Butler stating that while he would be “tremendously pleased” to be reelected as Chairman, he would decline the honor “if there is the slightest need to elect a chairman who can be present.” He left the matter in Butler’s hands, who declined Parsons’s suggestion. Again in 1926 Parsons suggested stepping down as Chairman following that year’s commencement. He wrote to Butler:
For twenty-five years you and I have taken part in the Commencement exercises and for the past ten years, except only two when I was absent in the army, we have been side-by-side at the head of the procession. I hope that we may be able to do it once more and then I will feel that the time will have come to give way to some one else. I appreciate, old man, all the friendship and mutual relation that has existed between you and me during those years and they will always be one of the joys for me to look back on.7

Butler’s reply was equally warm:

I am deeply touched by your letter of the 1st and most appreciative of it. We understand each other too well to waste many words. I must, however, beg you not to contemplate descending from the bridge of ship until I have had full opportunity to dissuade you. You can imagine the sense of loneliness which must follow when the last of the old guard goes below for rest. It would mean much to my mental comfort and satisfaction to have you where you are until the end.8

Parsons broached the subject again in 1930, writing to Butler that “if for any reason you were to drop out I should not want to stay, and though I do not want to leave you there are times and this is one when I ask whether it would not be best to let some one else take the high backed chair next January,” which he noted would mark 34 years on the Board and 14 years as Chairman.9

In reply, Butler wrote that “any such change as you speak of as a possibility is unthinkable. We have traveled a long and lofty road together these many years, and I propose that we keep it up together until we drop in our tracks or are disabled.”10

Parsons relented, telling Butler: “Out of my sincere admiration and deep affection for you, I will remain awhile, and do what I can to assist you in your great plans. But it is only you that holds me. Should anything befall you, which God forbid in my lifetime, I should follow my chief.”11

In the end, Parsons remained as Chairman until his death in 1932 and Butler presided over Columbia until 1945, when, at the age of 83, he acceded to the Board of Trustees’s request that he resign.

**Academic Freedom and the Faculty**

Parsons relished his position as Chairman and did not hesitate to impress his views on Butler, not only with respect to administrative and financial matters, but also about academic governance, particularly what he called “academic freedom,” about which he had strong opinions often in conflict with the university’s faculty. In a 1917 letter to Columbia Professor John Erskine, Parsons laid out his views on the faculty.
We recognize the position of men like you—the sincerity, the earnestness and the honesty of the great majority of the teaching staff. We do recognize, however, that there are in the teaching staff men who are bringing discredit not only upon the University, but upon the whole profession of teaching and of scholarship in general. These men are but few; unfortunately their noise is in inverse ratio to their numbers. The condition that exists at Columbia is not singular; other universities are afflicted, I know, in the same way. It is a source of regret to me that the great body of earnest scholars who form the teaching staffs of our universities have not risen to purge themselves of their own black sheep. You know better than I do that, to go no further than our own University, there are men who have both talked and in many cases, I regret to say, practiced immorality, impiety, disloyalty, and a general discredit of what the human race has found necessary for its own preservation to be the foundations of a stable society, and yet I do not recall one single instance where any faculty has come forward of its own accord to demand that men who do such things, which the majority disapprove, should be disciplined.\(^\text{12}\)

Early in his tenure as Chairman, Parsons demanded that he be placed on a Committee on Education that, according to a draft resolution of the Board, was charged with investigating the teaching of professors to determine whether any “have taught…doctrines that are not consistent with the Constitution of the United States or the State of New York…or which are not consistent with devotion to and support of the Government of the United States.”\(^\text{13}\)

Parsons was determined to exert more control over the institution’s faculty and to punish members of the faculty for what he considered “improper conduct” or “improper views.” Referring to a meeting of a trustees’ committee in March 1917 at which the issue of academic freedom was discussed, he told Butler: “There was a great deal of talk about the stone wall existing between the Trustees and the faculty. I think that when this is all over, there will be several holes in that stone wall.”\(^\text{14}\)

Although he was in wartime service in France in late 1917 and did not participate directly, Parsons clearly supported his fellow trustees in the firings in October 1917 of two noted professors whose loyalty to the United States was questioned in the patriotic fervor engendered by World War I. A third professor whose patriotism had been questioned by Parsons and others resigned in protest from Columbia that same month.

At its meeting of October 1 the Board of Trustees (with Parsons absent) voted to oust James McKeen Cattell, a psychology professor, and Henry Wadsworth Longfellow Dana, an assistant professor of English and comparative literature, because of “their public agitation against the conduct of the war.” Specifically, Cattell was terminated because of letters he wrote to members of Congress urging them to “support a measure against sending conscripts to Europe to fight against their will.” Dana was terminated because of his membership in an antiwar organization called the People’s Council.\(^\text{15}\)
Parsons was kept fully apprised of the university’s action against the two professors. Both Butler and Trustee John Pine wrote to Parsons following the trustees’ action against the professors at the board meeting of October 1. “I was waiting until we had taken one or two scalps. . . . Yesterday we got them,” wrote Pine.16

Parsons rejoiced at the news of the firings of Cattell and Dana. “I can not express my gratification at the outcome of the Cattell-Dana affair,” he wrote to Butler in November 1917. “My only regret is that my name was not attached to the committee report, of which committee I was and presume am still a member.” He added: “How little we thought on the Sunday night last winter when a few of us met at my house and laid out a campaign that we would ‘get’ the enemy so soon.”17

A few days after Cattell and Dana were dismissed, Charles A. Beard, a professor of political science, resigned. Beard’s action was partly in protest of the firings of Cattell and Dana and partly because of the trustees’ hostility to statements he had made the previous year in which he defended the right of free speech. According to an account in The New York Times, Beard stated at a meeting in April of 1916:

And if any one is discontented with the Government and doesn’t like the flag, let him come out in the open and say it. If we have to suppress everything we don’t like to hear, this country is resting on a pretty wobbly basis. This country was founded on disrespect and the denial of authority, and it is no time to stop free discussion.18

In his letter of resignation to Butler, Beard wrote that Columbia “is really under the control of a small and active group of trustees who have no standing in the world of education, who are reactionary and visionless in politics, and narrow and mediaeval in religion.” When asked by The New York Times, Beard refused to name those “few obscure and willful trustees who now dominate the university and terrorize the young instructors.” However, The Times reported that Parsons was among “the trustees that had displayed greatest interest in the speech that was delivered by Professor Beard last Spring, and that they had been active, also, in suppressing any utterances tending to promote ‘disloyalty’ among the educators and students at the university.”19

Parsons was among those who in the previous year had demanded that Butler investigate Beard’s statement about the flag. In April 1916, he wrote to Butler alerting the president to a newspaper account of a meeting “at which Prof. Beard is reported as saying that he justified the expression, ‘To hell with the flag.’ . . . Whether this story is true or false it seems to me to demand attention and action of some sort,” Parsons wrote, adding that he would bring the matter to the attention of the Education Committee, which he chaired.20 When he learned of Beard’s resignation a year later, Parsons, in a letter to Butler, exclaimed “Splendid!”21

Parsons did not relent in urging Butler to purge Columbia of those he considered disloyal once Cattell, Dana and Beard were no longer with the university. In a series
of letters written from France in 1917 and 1918, he implored Butler to take action against “the radicals.” In November 1917, he wrote:

The war conditions and great slump in income may give us a chance to do a lot of desirable house cleaning, and escape much hostile criticism. I earnestly hope that you will seize every pretext to get rid, quietly of course, of all undesirables.22

That letter followed one written several months earlier in which Parsons urged Butler to use the university’s wartime budget woes as rationale to cut budgets, departments and faculty. “This is an opportunity our generation will not have again. As you know the accumulation of dead wood, the duplication of courses, the doing of unprofitable work, are things that have worried me for a long time past.” He lamented that unlike the managers of businesses, university administrators were constrained “by the silly and vicious claims of Academic Freedom, or rights of Professors, or what not.” He continued:

It is hard to get the claims of the University, of the cause of education, of those for whom the University really exists, i.e., the students, considered in a proper light. Now we have the chance, and I sincerely trust, but do not doubt, that you will not stop until you cut deep with a sharp long knife and have removed every trace of 1st, heads of dissension, 2nd, incompetence, 3rd, courses or even departments that are not necessary or unprofitable.23

In another letter, he wrote: “We must seize the opportunity to root up the incompetent, the disloyal, the good-intentioned but false prophets, and select for the new University men of faith.24 He did not elaborate on whether he meant men of religious faith or simply men who shared his own views, but elsewhere Parsons, an Episcopalian and a vestryman and warden of Trinity Church, advocated for adherence to traditional Christian values.

Parsons complained to Butler that academics, alone among the professions, had no internal means of disciplining or dismissing their members. “Military men, lawyers, architects, engineers and even stockholders are quick to take action ridding themselves of objectionable associates, but teachers never. They even resent suggestions to do so.”25

Parsons also sought to curtail student activism, at one time suggesting that Butler take action against the Columbia University Socialist Society for protesting to the Japanese Ambassador to the United States the sentencing to death of 26 Japanese socialists. Parsons wrote to Butler: “…if we permit student organizations to exist, that does not permit them to use the name of the University in communication to the representatives of foreign countries without your consent.”26

Parsons’s objections to student activism were apparently based on the not un-
common view that young liberals, once confronted with experience, inevitably become conservatives. In 1930, at the age of 71, he wrote to Butler:

In all the freshness and ardor of youth they feel sure that their elders have failed to cure the evils they see and equally sure that they can find the cure by sweeping away established order. Too late they find that what to them is an experiment is something that has been tried many times but always found wanting. They then become conservatives, but in the meanwhile a new generation of enthusiastic untaught youth has come upon the stage.27

The Medical Center

Parsons’s position as Chairman of the Board of Trustees allowed him to play a major role in the development of Columbia-Presbyterian Medical Center, the huge hospital complex in Washington Heights built by Columbia and the Presbyterian Hospital. Parsons was Chairman of the Joint Administrative Board that directed the construction of the hospital that opened in 1928 and is now known as New York-Presbyterian Hospital.

Before the huge new medical center was built in Manhattan’s Washington Heights neighborhood, the facilities of the Presbyterian Hospital and the Columbia University College of Physicians and Surgeons were scattered throughout midtown Manhattan. The Columbia-Presbyterian Medical Center was envisioned as among the first medical institutions to combine patient care, medical education and research facilities in a single site.

Although the Presbyterian Hospital had agreed in 1911 to join Columbia in building a new medical center, the negotiations were often difficult, and were broken off several times. A committee of Columbia trustees negotiated with a committee of trustees of the Presbyterian Hospital, but the negotiations were acrimonious and it was not until 1921 that the two institutions finally reached a formal agreement to build the medical center.

In 1910, philanthropist Edward Harkness, the project’s principal benefactor and driving force, proposed a joint hospital and medical school, first to Roosevelt Hospital, which rejected his offer, and then to the Presbyterian Hospital, which agreed to the proposal. The so-called “first agreement” between the Presbyterian Hospital and Columbia University was signed in 1911. As part of that agreement, the two institutions agreed to jointly raise within five years $1.5 million to acquire the proposed site. In 1915, Butler told Harkness that the University did not have the funds to acquire the proposed site, and an option to buy the land between Broadway and Fort Washington Avenue from 165th to 168th streets where the medical center was eventually built was allowed to expire later that year. Three years later, Butler again declared that Columbia had not been able to raise the necessary funds, and objected to other proposals.
then under consideration. Later in 1918, the Board of Managers of the Presbyterian Hospital passed resolutions stating that the hospital’s efforts to create a joint medical center “have not been consistently met by a like effort on the part of the University, as represented by its President, and that for this reason, affiliation between the two institutions is no longer desirable.” The Board of Managers requested that the Columbia trustees “join with the hospital in the taking of such steps as may be necessary to cancel and terminate the agreement of affiliation, dated April 28, 1911.” Referring to those resolutions, Butler in June of 1918 told Parsons that a “most disagreeable situation has developed in connection with the Presbyterian Hospital” and suggested that Columbia might have to return to its original plan for its own university hospital and medical school.

I have no notion that after this any permanent cooperation between the Hospital and the University will be practicable…Our Presbyterian friends have gradually eliminated the Columbia officials with whom they will do business…it was hinted to us that no headway could be made if we put either Parsons, or Bangs, or Baker, or Pine on a Committee of Conference. They have now done me the honor to add me to that distinguished list...

Columbia, in the person of Butler, was primarily responsible for the failure of the two institutions to reach agreement, according to Albert R. Lamb, the author of The Presbyterian Hospital and the Columbia-Presbyterian Medical Center 1868-1943. Dr. Lamb, who was on the faculty of the Columbia College of Physicians and Surgeons and a consultant to the Presbyterian Hospital and personally involved with the negotiations, wrote:

The University had not matched the efforts of the Hospital to accomplish the goal of a Medical Center…The principal difficulty seems to have been that President Butler was bent on putting his own construction upon the plans for affiliation…but the affiliation was too tremendous a project for any one man to dominate.

In any case, the Columbia Board of Trustees, then led by Parsons, declined to cancel the affiliation agreement for the medical center, and negotiations between Columbia and the Presbyterian Hospital were soon resumed. In 1919, Parsons replaced Butler as the university’s principal negotiator with the hospital.

William Darrach, newly appointed Dean of the Columbia College of Physicians and Surgeons, prepared a memo in 1919 that is widely credited with leading to the February 1921 agreement that would allow the project to move forward, provided Columbia raised $3 million for construction of the new medical school by July 1, 1921. In May of that year, Parsons as Chairman of the Board of Trustees of Colum-
Dean Sage, President of the Presbyterian Hospital, Helen Young, Director of Nursing, and Parsons opening the doors of Columbia-Presbyterian Medical Center for the first time in March 1928.
Parsons (far right) presided at the dedication ceremony for the Columbia-Presbyterian Medical Center. Nicholas Murray Butler is the speaker.

The dedication of Columbia-Presbyterian Medical Center on October 12, 1928.
bia announced that the university and the hospital had finally reached agreement on proceeding with the medical center. “The boards of the two institutions are working in closest harmony,” said Parsons. “We plan to make this the greatest [medical] institution in the world.”31 As part of that agreement, a Joint Administrative Board was formed to direct the construction of the medical complex. The board was comprised of three representatives of the Hospital’s Board of Managers and three Columbia trustees, including Parsons, who eventually succeeded Harkness as Chairman of the Administrative Board in May 1924.

As Chairman, Parsons was charged with securing $3 million (to fulfill the terms of the 1921 agreement) from the Rockefeller Foundation, the Carnegie Corporation and the General Education Board (a Rockefeller charity). Meanwhile, Harkness’s mother, Anna Harkness, bought and donated the site between 165th Street and 168th Street bounded by Broadway and Fort Washington Avenue and valued at $2 million. Harkness contributed another $1 million. In an amusing letter to Butler dated July 13, 1922, Parsons wrote:

I have $2,300,000. Unfortunately it is not my own. I had a letter from Mr. Harkness the other day telling me that he was prepared to turn over to the University the securities from his mother’s gift amounting to $1,300,000 if I would send over and get them. I called then and incidentally he mentioned that when I sent the office boy over to get the papers that perhaps I would be good enough to tell him to wait while he (Harkness) could provide him (the boy) with another million dollars, being his own gift. The day was hot and it was really most charming and refreshing to hear a person talk most casually of giving away a million dollars!32

By June 1923 Parsons reported to Butler that the new medical center was “in a splendid and highly encouraging state of mess.”33 A year and a half later, on January 31, 1925, he officiated at a groundbreaking ceremony along with Butler, Harkness, and Presbyterian Hospital President Dean Sage. “Work on the medical center has begun,” Parsons declared.34

Progress following the groundbreaking was swift. Just a year later, Parsons drove the final rivet on the 10-story framework of the hospital during a ceremony on May 24, 1926. In March 1927, he announced that the medical center would also include a school of dentistry. In October of that year, Parsons spoke at the groundbreaking for the Neurological Institute of New York and at another ceremony at which the cornerstone of the New York State Psychiatric Institute was placed. Parsons said the psychiatric hospital would be a place “where sufferers can be rescued from the awful darkness of a living death and be restored to the sunshine and brightness of an unclouded, happy, useful life.”35
The $25 million medical center was formally dedicated on October 12, 1928, in a ceremony at which Parsons presided. “The fruits of 18 years of labor stand before you,” Parsons told a crowd estimated at 5,000 to 8,000 people. “The allied institutions offer this first effort as an initial contribution to the relief of suffering humanity in all forms and for all time.”

The new medical center included not only the Presbyterian Hospital and the Columbia College of Physicians and Surgeons but also the Sloane Hospital for Women, the Vanderbilt Clinic, Babies Hospital, the New York State Psychiatric Institute, the Neurological Institute of New York, and related facilities including the Columbia School of Dental and Oral Surgery and the School of Nursing. The combined institutions had a total of 1,674 beds and accommodations for 400 medical students, 236 student nurses and 171 dental students.

Other medical centers had been built at Harvard, Yale and Johns Hopkins, but the Columbia-Presbyterian Medical Center was hailed as the newest and the best. Referring to the medical center’s three-part mission of medical care, research and teaching, *The New York Times* declared in an editorial that “never before have the three services been coordinated in one institution on such a scale and with such endowment and equipment.” *Time* magazine called it the “greatest medical centre in the world” offering “resources never before equaled.”

Ironically, just five years later, Parsons would die there, unexpectedly, following surgery.

**Parsons’s Legacy**

Following Parsons’s death in 1932, Butler would preside over Columbia for another 13 years, and it was not until that time that he was free of Parsons’s shadow and “at long last fully in charge,” according to Columbia historian Robert A. McCaughey, who argued that Parsons’s influence as trustee and Chairman has never been equaled.

Parsons’s death marked the end of an era in the history of Columbia governance. Never since has a single trustee had such intimate knowledge of university affairs, such influence with his fellow trustees or such sway over a president, or as long a term to acquire such knowledge and exercise such influence and sway.

**The Carnegie Institution**

Parsons served another distinguished center of research, the Carnegie Institution of Washington, for 25 years as a member of its Board of Trustees. As he was at Columbia, Parsons was actively engaged in the management of the Institution, and he did not hesitate to offer opinions, advice and suggestions, not only pertaining to the vision of the Institution but about administrative detail as well.

Parsons joined the board in 1907 and served until his death in 1932. At the time
of his appointment, by his own admission, he knew “practically nothing” about the work of the organization that Andrew Carnegie founded in 1902 to support scientific research, but he resolved to be actively involved in the Institution’s affairs, and he soon became a member of the executive committee and eventually the finance committee as well. As he did with Butler, Parsons corresponded regularly with the two men who served as President of the Institution during his tenure—Robert S. Woodward, who served from 1904 to 1920, and John C. Merriam, the noted paleontologist, who was President from 1921 to 1938.

Parsons used his position as trustee to advance his interest in pre-Columbian Mayan civilization. As early as 1910 he pressed Woodward to devote $5,000 to “a thorough investigation of all matters of archaeological, ethnological and scientific investigations of Central and South America,” adding that, initially, “the Institution should confine itself to archaeology.”

Parsons grew impatient with the Institution’s progress on the matter, and in a 1912 letter to Woodward, expressed “great disappointment” that Woodward did not make “some positive recommendation” with respect to archaeological research in Central America in a report he prepared at the request of the Board of Trustees.

In his report, dated May 11, 1912, Woodward pointed out that “the museums of Berlin, London, Boston, New York and Washington are well stocked with materials showing the art, architecture, and relative culture of the ancient civilization in question.” Woodward wrote that “further exploration might add somewhat to these collections but apparently not to any important degree.” Instead, Woodward, recommended “more attention to correct interpretations of the vast quantities of facts and materials already available.” Woodward also said that “account should be taken of the difficulties to be met under the unstable governments of the Central American Countries.”

None of this satisfied Parsons, who in response wrote that he hoped Woodward would be authorized “to nominate a man at the earliest possible moment who can make a summary of the field and produce a report.” He reminded the President that the Board of Trustees “authorized the Executive Committee to make the necessary allotment that such a report would cost.”

Although in his reply Woodward told Parsons he was “glad to get your frank expression of opinion,” he remained “decidedly of the opinion that it is much more important to establish a department of anthropological research than to undertake any special field of work in anthropology.”

Parsons eventually prevailed, for by October of the following year he was intimately involved in editing the galley proofs of the report he sought, which was prepared by noted archaeologist Sylvanus Griswold Morley. Morley was already a recognized authority on the Maya, having first visited the Yucatan in 1907, but his prospects for advancing research in his field were bleak until “rescue came in the shape of the Carnegie Institu-
tion of Washington,” according to his friend and colleague J. Eric S. Thompson, who was once on the Carnegie staff. According to Thompson, Woodward’s opposition to Morley’s initial research proposal for Chichen Itza “was outvoted by an executive committee he chaired” despite the fact that two competing proposals, in Thompson’s estimation, had more merit. Morley prevailed, according to Thompson, at least partly because he had “friends at court.” Parsons, presumably, was among them.

The Mexican Revolution (1910-1920) prevented the Carnegie Institution from beginning excavation in the Yucatan until 1924, but in that year, Morley and his party started work. Under Morley’s direction, Carnegie researchers excavated and restored various structures of the Mayan city of Chichen Itza, including such famous sites as the Temple of Warriors, the Temple of the Three Lintels, and the Caracol. Morley continued directing research at Chichen Itza until 1940 and also initiated research at other Mayan sites including Copan and Uaxactun. He published his classic text on Mayan civilization, *The Ancient Maya*, in 1946. He retired from the Carnegie Institution in 1947 after 33 years.

Chichen Itza and other Mayan cities were well-known as early as the mid-19th century; archaeologist Alfred Maudslay published a book about pre-Columbian Mayan civilization in the 1880s. However, in 1924, when the Carnegie excavation began, many of Chichen Itza’s treasures lay buried, and the work undertaken at Parsons’s urging by the Carnegie Institution contributed significantly to the restoration of Chichen Itza and the understanding of Mayan culture. Today Chichen Itza is a World Heritage site and one of the most popular of the ancient Mayan cities, visited by more than one million people each year.

Parsons took a keen interest in Morley, a colorful character who suffered from a variety of ailments, including malaria, colitis and amoebic dysentery. Parsons once wrote to W. M. Gilbert, the Institution’s Administrative Secretary, to relate that he had received a “distressing letter from Dr. Morley in which he tells me he is broken down and is going to New Orleans to go into a hospital for a long treatment.”

The following year, Parsons wrote to John C. Merriam (who succeeded Woodward as President of the Carnegie Institution) suggesting that a drug called “Brodie’s Cordial” be sent to Morley. According to Parsons this concoction contained 12 percent alcohol and one-ninth of a grain of morphine to the fluid ounce. “So I suppose it is on this account,” he wryly observed, “that they have difficulty in selling it generally.” Parsons suggested to Merriam: “If you know of anybody going to New Orleans and you think this is a good thing to send to Morley, perhaps you can arrange to get it to him.”

Parsons didn’t hesitate to share his views with Merriam, and he could be an exacting critic. In a June 1931 letter to Merriam, Parsons acknowledged that volumes he had received on the Temple of the Warriors were “magnificent” but complained: “There is no account given of the careful way in which the excavation was carried
out; nor is there a picture of the Temple of the Warriors as it stood before any work
was begun.48 But Parsons could also be jocular. In a lighthearted letter to Merriam
giving himself at least some of the credit for an important discovery, he wrote:

I suggested last year to Morley to make search beneath the altars as they to me
were the most promising places for caches, and I am therefore patting myself on
the back this morning. As nobody else does it I thought I would do it.49

In fact, Merriam had high regard for Parsons’s interest in the Institution’s work
in Central America. Parsons “contributed advice of great value on the archaeological
program of the Institution in Middle America, with every aspect of which he was in
constant touch,” Merriam once wrote.50

Parsons remained intimately involved in the Mayan research until his death. Just one
month before his death, Merriam wrote to him relaying the news that the Mexican govern-
ment approved an expedition “to the new Maya locality near the southern border of Yucatan”
which promised to be “one of the most interesting opportunities for Morley’s work.”51

Although Parsons’s correspondence with Merriam does not indicate the kind of
depth friendship he had with Nicholas Murray Butler, their letters reveal vigorous in-
tellectual discourse and mutual respect. In commenting on a theory put forward by
someone identified only as Major Gardner, Parsons mused: “I can see that the pro-
portions of harmony of form ought equally well follow the proportions of the har-
mony of sound in some mathematical ratio.”52

That comment prompted a four-page, typed, single-spaced reply from Merriam
in which he expounded on “several related questions out of my own scientific work
in addition to two similar problems in the Institution.”53

Merriam’s high regard for Parsons’s intellect is evident in his preface to Parsons’s
book, Engineers and Engineering in the Renaissance, in which Merriam wrote that
Parsons possessed a mind “appreciating at the same time the professional, the scien-
tific, and the historical aspects of a problem.”54

One of Merriam’s successors, James D. Ebert, was similarly laudatory in a 1982 assess-
ment of Parsons’s contribution to the Carnegie Institution’s Mayan research. Ebert wrote:

Mr. Parsons gave impetus to the Institution’s pioneering work in Middle Ameri-
can archaeology—work still acknowledged for its importance in scholarship and
for enabling preservation of the Mayan ruins in their present condition.55

The Carnegie Institution closed its Department of Archaeology in 1958. “But the
magnificent Mayan ruins preserved in Guatemala and the Yucatan, along with the
knowledge recorded in the classic publications by the Carnegie archaeologists,” wrote
Ebert, “testify to the judgments and initiatives of Parsons and his fellow trustees.”56
Chapter 11: The Private Parsons

Photographs of William Barclay Parsons suggest a stern, patrician gentleman with a deep sense of purpose and little sense of humor. These photographs, and some of his writings in the public sphere, support a view of him as disciplined, cold and remote.

Historian Clifton Hood acknowledged that Parsons “radiated strength and dignity” but claimed he “was hardly an amiable or engaging man” and “had little personal warmth.” Hood harshly criticized Parsons for his seeming lack of compassion for 74 workers who died during his oversight of the construction of the New York City subway. “Parsons lost no sleep over the deaths of these lowly workers of foreign stock,” Hood wrote in 722 Miles: The Building of the Subways and How They Transformed New York. “To Parsons’ cold way of thinking, all that really mattered was keeping the subway on schedule and ensuring that it was a success on opening day.” In summing up Parsons’s work on the New York City subway, Hood wrote: “He got the job done, but at a terrible price.”
Indeed, in his annual reports to the Board of Rapid Transit Railroad Commissioners, Parsons records the fatalities on the project in a dispassionate manner, always absolving his engineers, contractors and himself of any blame in the deaths of workers, implying that fatalities were a consequence of the inevitable accidents that accompanied an undertaking as audacious as the construction of New York’s first subway.

Those who knew and observed Parsons in his time had a more nuanced view than that offered by Hood. They described a self-possessed man who was courtly, kind and scrupulously honest. Some claimed he was personally modest and had a sense of humor, although it’s clear that Parsons took himself and his work very seriously, and viewed his contributions as worthy of posterity.

A reporter for *The World* newspaper who interviewed Parsons the day after the subway opened described the then 45-year-old engineer as “ruled by a highly educated intelligence” and presenting “a baffling front of well-bred composure.” Parsons was “a figure to remark and remember and never to mistake for another,” wrote the journalist, Kate Carew. She continued:

He is long and lean and somewhat ramshackle in structure, with sloping shoulders, a long neck and a large, intellectual head. But the eyes are...the most remarkable feature of the face. They are eyes that would be remarkable in a crowd of eyes. First in color. They are perfectly gray...and usually they are round and cold and quite unreadable...Still, they can flash.

Carew also found Parsons’s accent “a trifle exotic,” perhaps sounding somewhat British to an American ear. “But it isn’t English,” she concluded. “It is merely cultivated.”

Another journalist who spent some time with Parsons in 1903 while interviewing him for an article in *The World’s Work* magazine wrote that Parsons was a “kindly man with a genial sense of humor” and one “who naturally likes people and enjoys showing that he likes them.” Referring to the engineers who worked for Parsons on the design and construction of the New York subway, the journalist, Arthur Goodrich, declared: “The men who work with him all believe in him thoroughly both as engineer and man.” He summed up Parsons thus:

A man with an imagination that plans great things, with thoroughness doing one thing at a time and that one thing well; with executive power and a genius for leading men; with the skill and tact of a trained diplomat, and with an unalterable determination that gets great plans, thoroughly handled by thousands of men under his direction, done on time. . .

*The New York Times* characterized Parsons as “a man of rare personal charm” and “native modesty,” adding that his “unfailing courtesy and self-restraint impress all with whom he has business relations.” In an editorial on the opening of the subway, *The Times* wrote:
He combines quickness of perception with the thoroughness which permits him to work his way patiently through a mass of intricate details, neglecting nothing. Always willing to listen to suggestion or argument, and desirous of the fullest and frankest expression of opinion from all who work with him, he reaches his conclusions in the light of the best advice he can secure; but having made up his mind what to do and how it should be done, he is as inflexible as one of his own steel columns.

*The Times* was particularly impressed by Parsons’s personal honesty and leadership during the planning, design and construction of the New York City subway:

In the organization of his staff personal considerations were dismissed and ‘influence,’ social or political, had no weight. His appointments were all made with the strictest and singlest regard to merit, and for no other consideration than fitness for the work to be done. As the result of capacity, combined with rare tact and diplomacy, he has carried the great undertaking to successful completion, not only without developing personal animosities, but with the respect and affection of all who have worked with him in any relation.  

**War Letters**

Parsons’s wartime letters to his family and to his friend Nicholas Murray Butler have a warm, emotional tone very different from the precise, formal language of his public writings, and they provide a glimpse of his most intimate feelings. Many of his letters to his family are preserved in *War Letters*, a privately printed collection of correspondence that the Parsons family exchanged during World War I. The volume includes letters by Parsons; his wife Anna, a Red Cross volunteer in France; son William Barclay Parsons, a physician who volunteered with U.S. Medical Corps in France; daughter Sylvia Parsons Weld, who remained in Boston with her family; and future daughter-in-law Rose Saltonstall Peabody, who accompanied the Parsons family to France as a hospital, orphanage and Red Cross volunteer. The letters tell a remarkable story of a clan caught up in a singular event in human history, and give a sense of a privileged family’s deep sense of *noblesse oblige*, as well as their devotion to one another.

Recollections of Parsons by some of his descendants support the view of him as a warm, engaging man with a sense of humor. A granddaughter, Anne Priest, called him “warm, funny, bright…not austere” during an interview at The New York Public Library in June 2004. Another granddaughter, Rose Parsons Lynch, said he was “intellectual” and “slightly remote” but had “a wonderful sense of humor” and was “a very loving man.”

Judging by his wartime letters and diary entries, Parsons, after 35 years of marriage, was still very much in love with his wife. He wrote of her wartime service with great pride, fretted for her safety and relished the times when the two could be to-
William Barclay Parsons: A Renaissance Man of Old New York

gathered in Paris when he was summoned there for duty or during brief periods of military leave. After leaving his wife at a train station following a Christmas holiday in Paris in 1917, Parsons wrote in his diary, “I have never so hated to say goodbye to her, except possibly the night at Hankow when I saw them all off for Shanghai leaving me face to face with the unknown,” referring to the departure of his wife and children before he began a survey for a railroad from Hankow to Canton in 1898.6

In an entry in his wartime diary after attending a church service in November 1917, Parsons wrote of being overwhelmed with feelings of loneliness for his family. His wife was en route to France and he had just received word that his older brother Schuyler had died.

The singing of the hymn for those on the sea nearly broke me down with dear Anna just entering the submarine zone, and the prayer for those at home calling up my dear old Mother with all her suffering left me no better. I cannot realize that my brother Schuyler is gone. Came back to lunch as I wanted to be alone. After reading awhile I went for a walk, the dogs joining me for the first time, for which I was very glad.7

Parsons was intensely proud of his son, called Barclay, a physician who volunteered for service in the war. In a letter to his wife, he wrote of a visit with Barclay, describing him as “splendidly handsome and every inch a soldier.” He concluded his letter thus: “Now good-night, dear. Once more I do love you. Barclay and I agreed today that we were proud of you. You and I can be proud of our boy.”8

Following the Armistice, as Mrs. Parsons was about to leave Paris, Parsons reflected on their wartime correspondence in his diary.

Yesterday’s letter to Anna was my last daily letter. I have missed but very few days, and she has done as well or better. I never was so proud of her, never loved her so much.9

In a wartime letter to his daughter, Sylvia Parsons Weld, then married and living in Boston, he wrote:

Thank you very much, dear Sylvia, for saying that you were ‘awfully proud’ of your Dad. There is nothing you could have said or done that would have given me more pleasure or gone straighter to my heart. To feel that my little girl is proud of her old man is about the best I can have.10

In another letter to Sylvia, Parsons wrote: “Of my three women-folk, I am so proud. My wife, my mother, my daughter. They are all so plucky, so brave.” In the same letter, Parsons wrote of his affection for his older brother, Schuyler, who ran the family business, Parsons & Petit, a wholesale chemical import firm, and owned a racing stable. Upon being informed by telegram of Schuyler’s death, his younger brother wrote:
I was tremendously attached to Schuyler. When I was a small boy he was a man in my eyes. I had always looked up to him. Although in character, in point of view, in tastes we were diametrically opposites, yet there was a peculiar bond of sympathy that united us, and more than is usually found between brothers. I feel his loss more than I can say.11

Parsons and his younger brother, Harry, established an engineering consulting business in 1885 and were partners in that endeavor for many years, but of their personal relationship little is known. Harry apparently left the firm for private practice sometime after 1900, although the two brothers collaborated on at least one large project in the early 1920s. Even less is known of Parsons’s relationship with his third brother, George.

Although very much a member of the elite, who valued his association with some of the leading figures of the day—such as Seth Low, President of Columbia University and Mayor of New York, and novelist Edith Wharton, whom he visited in France during the war—Parsons also had empathy for those not of his class, and his wartime diary contains sympathetic observations of the suffering endured by the French. In a typical comment, writing of an elderly French couple after they had witnessed the destruction of their home by the Germans, he said: “The mute simple agony of that poor old woman’s face will always haunt me.”12

In a 1908 letter to the Charity Organization Society (now the Community Service Society), he referred a hardship case and asked the organization to “investigate promptly, give immediate relief if such is needed, and report to me.” He added: “Distress is evidently on the increase. During the past three weeks I have met more men begging than in the past three years.”13 He once wrote to the President of the Carnegie Institution on behalf of his former secretary, Ralph Bois, who had tuberculosis and was attempting to get a job at a Carnegie laboratory.

He is alone in the world and has been, I fear, exceedingly, ill, and has had a rough time of it. During the past few years I have helped him from time to time... I do feel that perhaps the one chance the boy has to live is to get a good steady position where his mind can be taken off his own ailment.14

He also had compassion for animals, and enjoyed horseback riding and the company of dogs. He went to great lengths to obtain the use of a horse during his wartime service in France, and rode for pleasure as well as in connection with his duties. He once wrote of his fondness for a mare that at first fought the bit until she realized that Parsons was a sensitive rider with a gentle hand. While stationed in Chateauroux, he took in a small dog. In an amusing letter to his mother, he told the story of how he came to adopt the stray.
I have a confession to make. Anna knows of it, but not Sylvia. A little French lady has fallen desperately in love with me and insists on sleeping in my hut! It came about this way. Ten days ago I was out walking, and she joined me and came to camp. I went to Paris and supposed that when I came back she would have gone home. But she was here, greeted me affectionately, and never leaves me. She is quite pretty, except her ears, which stand up and do not fall down as a fox terrier’s should. My hut is small, but you know that if a doggie or doggies want to share it, that I could not say No.  

His Friendship with Nicholas Murray Butler

Parsons had an extraordinary friendship with Nicholas Murray Butler, the President of Columbia University, corresponding with him regularly during their terms as Chairman of the Board (1917-1932) and President (1902-1945), respectively. The two, who were undergraduates together at Columbia, exchanged letters regularly from 1904 to just weeks before Parsons’s death, and while university matters were usually the subject, they also discussed politics and current events, as well as their travels and vacations. Both prolific writers, their letters to each other are thoughtfully and carefully composed, and have a warm, affectionate tone despite the formality of their writing. Parsons’s letters to Butler urging him not to overwork and to take vacations give a sense of the intense bond between the two men. In June 1919, Parsons implored his friend to take a sabbatical:
No one knows what you have gone through since July 1914. I can guess a little...no man can pass through the moments of mental pain that I know you have passed through without feeling the strain. In addition to all this you have been carrying almost alone and unaided the burden of the university in the most trying period in its whole history. With all this worry and strain it is extraordinary that you have not broken down, but you can not keep it up indefinitely...You know that this letter is written out of my affection for and pride in you. I cannot force you to take a rest. I can only suggest, and this I do. You need a complete change, and your country and the university will be better off if you get it and get it now.16

Parsons tried again in January 1921 to convince Butler to take a sabbatical, and his letter reveals his own views about the nature of work and the need to periodically take breaks from it.

You have been very closely attached to your work for many years. Under such conditions it is impossible for any man to render the highest grade of service. At intervals he should go away quite apart from his work and come in contact with other men and other things and so gain a new viewpoint with a broadened perspective.17

Parsons heeded his own advice with his frequent travels in Europe and vacations at his summer home on Cape Cod, and he also indulged his passion for sailing at his country home in Navesink, New Jersey. “I love the sea in every form and in every relation—I love it,” he once said.18

Parsons was an avid seaman who had a home on the New Jersey shore and also spent vacation time in Cape Cod, Massachusetts.
Parsons traveled extensively for both business and pleasure. He is shown here in 1924, presumably in Europe with members of his family.
Following Parsons’s death, Butler called his friend “a true representative of the culture and refinement of old New York” and said Parsons’s “interest in education, in religion, philanthropy, and in public service all came as naturally to him as did the ordinary incidents of life.”

During a 1934 ceremony at the university’s St. Paul’s Chapel unveiling a tablet commemorating Parsons’s service as Chairman of Columbia, Butler reflected on their long friendship.

We were undergraduates together more than a half-century ago, and then began the intimate friendship which lasted for a lifetime…From those years until the last day that I saw him upon his bed of final illness our relationship was one of closest intimacy and most affectionate friendship…He had that fine feeling and kindly courtesy of the cultivated American gentleman which meant so much in the life of all those with whom he was brought in contact.”
Chapter 12: Parsons on Engineering

Parsons’s work on the New York City subway and the Cape Cod Canal, as well as his extensive writings, gained for him wide recognition as one of the leading authorities of his time on civil engineering. So highly regarded was Parsons on the subject of engineering that James Kip Finch, the Renwick Professor and Dean of the School of Engineering at Columbia University, begins his book, *Engineering and Western Civilization*, with the following quote from Parsons.

It is not the technical excellence of an engineering design which alone determines its merit but rather the completeness with which it meets the economic and social needs of its day.¹

The Age of Engineering

By the end of the 19th century, engineering was firmly established as a profession. The Institution of Civil Engineers was established in London in 1818. In the United States, the American Society of Civil Engineers was founded in 1852, followed by the American Institute of Mining and Metallurgical Engineers (1871), the American Society of Mechanical Engineers (1880), the American Institute of Electrical Engineers (1884) and the American Institute of Chemical Engineers (1908). In 1900, the year construction began on the New York City subway, there were 45,000 engineers in the United States. By the time of Parsons’s death in 1932, that number had grown to 230,000. Nonetheless, the profession “remained tiny and elite…engineers counted for but one half of one percent of the entire economically active population,” according to David F. Noble, the author of *America by Design: Science, Technology and the Rise of Corporate Capitalism*.²

Parsons argued that by the early 20th century, engineering had gained equal rank with the other professions.

Law, medicine and theology were formerly the only recognized professions. Engineering has not only elbowed its way into this select and highly respectable group but it has almost, and perhaps somewhat rudely, crowded the others into distinctly restricted places. Today man turns to the original three only when he finds himself in trouble, and perhaps not even then to religion, but from the products of engineering he is never out of touch. He cannot escape them, even if he would.³

In Parsons’s view, during the 19th century, the discipline of civil engineering emerged from its grounding in military engineering. For most of human history, he said, “the engineer was essentially a military man,” responsible for directing the apparatus of war.
So firmly fixed was this conception of the status of the engineer that in spite of the great variety of work being done other than of military purpose, the 18th century was half gone before it occurred to any one that there lay in the doing of these other things the germs of a distinct vocation, and that by applying scientific analysis and mathematical computation, the construction of bridges, the draining of marshes and the development of rivers could be vastly improved.4

He considered the 19th and early 20th centuries the age of engineering, and he credited his profession with many of the great advances of the time. He detailed the progress made possible by engineering in the 19th century in a speech to students at Cornell University in 1901:

The telegraph has annihilated time; the locomotive and the ocean liner are reducing distance to insignificant proportions; rivers and mountains are no longer insuperable barriers to the bridge builder and the tunnel borer; the vast congestion of population in our bustling cities is rendered possible by improved sanitation, while the development of mill machinery has placed within the reach of all of us those things which a few years since were the privilege of the richest only. Such are the results that the world in the cause of civilization owes to the Engineer.5

In a 1927 address to Columbia University engineering students, he declared: "No span of one hundred years in all history can show social and economic changes in the least comparable with those wrought in the hundred years just past and these changes are the direct outcome of engineering."6 In another lecture at Columbia, he argued that "of all human activities, engineering is the one that enters most into our lives, that gives us our means of living, and permeates every fiber of the social fabric."7 In his 1901 lecture at Cornell and again in 1927 at Columbia he claimed that engineering not only served civilization but, in fact, made modern civilization possible.

The spreading of civilization, the opening of the countries of the world hitherto closed to the benefits of modern conditions, is essentially an engineering triumph.8

The underlying principles of the present state of world culture, or civilization as it is usually and erroneously called, rest on engineering...Engineering today is the actuating principle of all man's activities, whether in houses, transportation, the making of the necessities as well as the luxuries of life, and the production of power to supplant hand labor. Nations are progressive, powerful and rich in proportion as they avail themselves of such facilities.9
**Engineering in the 20th Century**

As impressed as he was with the progress made possible by engineering during the 19th century, Parsons was even more optimistic about the potential of engineering, coupled with science, to improve the condition of mankind in the 20th century.

I look for the spreading of existing engineering civilization over those portions of the world where it is not now in evidence, and perfecting the application of science at home so as to give there the benefits of a much greater and wider application than they now have. I look for better lighting, better paving, better building, better sanitation in our cities... and for a general advance in machine design tending to decreased cost of all manufactured articles.10

Reflecting on the state of the world following World War I, Parsons made the argument that engineering had the potential to contribute to world peace. In a 1929 lecture at Columbia University, he said:

...if world stability and world peace are again to be established on a sound basis, it will be largely through the work of the engineer devising new means of production to counterbalance the human losses in the war, creating new economies whereby the appalling debts can be discharged, and with science that recognizes no boundaries and no differences in races or people, to weld the nations of the world in closer harmony through new industries and new commerce.11

The great advance of engineering in the first quarter of the 20th century, Parsons argued, was due to “the closer connection between engineering and science,” and he predicted that future progress would depend on the continued fusion of those two disciplines.

Today the engineer who would become prominent in his profession must know not only what is generally accepted as coming under the designation of engineering but also be a physicist, chemist and metallurgist, and have an understanding of pure science, so as to be prepared to solve his problems, or to have them solved, in the laboratory as well as in the computing room or on the drawing board.12

He concluded that “science applied to engineering” had enormous potential to effect positive social and economic change and would outweigh “all our sins of ignorance and wastefulness,” making it possible to “regard the future with calmness and assurance.”13

**Defining Engineering**

“But what is engineering?” Parsons posed this question to students at Cornell in 1901 and then answered his own question. He began with the definition of engineering offered by renowned British engineer Thomas Tredgold: “The art of directing the
great sources of power in nature for the use and convenience of man.” He offered no refinement of Tredgold’s view, and he insisted that engineering should be in service of producing benefits for mankind.

“The engineer has a higher mission to perform than that of a mere technologist. He occupies a position of trust and great responsibility,” he said in a 1923 address to the graduating class of engineers at Columbia University. “The idea of service to others is the keynote.”

Parsons believed that what he called “economy” was the “the great underlying condition of all engineering work and design. In defining economy, he said:

By this word I do not mean cheapness or even low cost, nor even a design devoid of all attractive features and confined solely to the bare lines of actual requirements, but true economy in the highest sense—the avoidance of waste, the meeting of a need, the successful arrangements of the parts in relation to the whole, and the giving to that whole a certain fitness which constitutes its right to exist at all.

He also insisted that engineering must be adapted to the purpose at hand, and that it should draw heavily on successful precedent. “This to me illustrates the basal principle of engineering design, where there is no such thing as an absolute ‘best,’ but where every problem should be considered through the light of experience elsewhere, each on its own merits.” He summed up his definition of engineering by arguing that it was neither a matter of detail nor of generalization but “essentially a harmonizing of the two, the perfecting of the details of a principle that in itself is sound.”

The Production of Power

Parsons was remarkably prescient about the potential—and the shortfalls—of technology in the 20th century, particularly with respect to power. He confidently predicted that reserves of oil and coal would be exhausted within the next century. He called for more efficient technologies to burn coal and oil but predicted an energy crisis unless engineers also developed alternative sources of energy.

The existence of fuel, coal and oil, is fairly well definitely known, both as to location and extent. Its quantity is absolutely limited. If we keep on using it as we are and at the same increasing ratio, a limit of consumption will be enforced within less than one hundred years. and it will be all gone so far as a source of power is concerned, within a comparatively short period afterward.

He pointed out that modern civilization “depended entirely for its existence on
power” and predicted the end of “our boasted mechanical culture” within the next century if mankind continued its wasteful use of coal and oil and failed to develop new sources of power such as biofuel, solar and geothermal—technologies that have only recently become widely perceived as viable alternatives to fossil fuels.

Will our successors raise fuel by intensive growth, aided by irrigation, will they draw from the central heat of the earth, will they secure heat that is contained in the sun’s rays, or will they find it in some undiscovered source of energy?

Without concerted action to conserve the earth’s resources, he said, “we of this generation will be blamed by the generations to come for squandering the most precious of nature’s gifts.”

**Engineering and Architecture**

Parsons had strong views on the relationship between engineering and architecture, describing tensions that have not been resolved to this day. In his book, *Engineers and Engineering in the Renaissance*, he commented on the difference between the two professions.

The art of construction consists of two parts: in one (engineering) the application of scientific principles predominates; in the other (architecture) esthetic considerations govern. No sharply defined line of demarcation can be drawn between them nor can any hard-and-fast rule be laid down to distinguish one from the other, as both make use of science and both appeal to the artistic effect. But, speaking broadly, the above definition fairly describes engineering and architecture with respect to each other. The practitioners of each are followers of the same calling, working along parallel, not divergent, lines that are at frequent intervals cross-connected.

Yet, in a 1911 address before the Architectural League in New York, Parsons argued that “architects and engineers are very far from working harmoniously together.” He spoke of the “great gulf” between the two professions and conceded as “probably true” the charge by architects that engineers “lack certain liberal-mindedness and resent suggestions whereby our structures may be made more pleasing to the eye.” Beyond that, however, he conceded little. Setting the tone for his speech, he told the audience: “…what engineers think of the architect—ladies being present, I would not dare repeat.” He went on to offer a critique of his own profession but an even more pointed criticism of what he described as the failures of architecture to match the advances of engineering in the modern age.

The engineer has become an extreme utilitarian to whom economy, not necessarily of money, is his measuring standard, while the architect has so welded
himself to ancient models and rules evolved from conditions that do not now exist, that he has lost the power of invention. 21

He acknowledged that architects had “materially bettered the standard of taste in this country, for which we are all indebted.” He also praised architects for the skyscrapers “that are the wonder of the age” but added that in the case of skyscrapers, architects were “wholly indebted” to the structural innovations made possible by engineering. “Without the engineer giving you the deep foundations, the steel frame and the elevator, you would still be constructing office buildings five and six stories in height,” he told the architects. He went on to say that architects had failed to make advances in the 19th century comparable with those of engineering and were merely imitating the styles of antiquity and the Renaissance. “You copy here a tower, transform there a church and make railroad stations look like pagan temples,” he said. “Since the days of the Renaissance, 300 or 400 years ago, not a single new style you have produced.” 22

Parsons lamented the fact that the engineer of his time not only admitted he was not an architect, but “does not want to be one” while the architect “thinks himself an engineer and is not.” He predicted that “no progress in architectural construction will take place until this difference in point of view is recognized by both sides.” He concluded his remarks by calling on architects to “lay aside the rules” that governed their predecessors and to “take up fearlessly the science of the twentieth century.” 23

**Engineering Education**

Parsons’s position as Chairman of the Board of Trustees at Columbia University gave him a platform from which to advance his views on engineering education. He argued that engineers should not be narrowly trained as technical specialists but broadly educated in the arts and humanities, as well as science and technical disciplines.

There must be a background of culture that will produce a mental poise enabling [the engineer] to view the field broadly and permit him while not disregarding the technical aspects of a problem, to put them in the balance and there weigh them with consideration of economics, social requirements, expediency, necessity, ultimate effect and all the other factors that bear on men’s lives and that shape those lives and sometimes the welfare of nations.

This background of culture has been found necessary for any man in any calling who wishes to be considered educated and to take the lead in his calling. It consists in literature, languages, particularly advanced English, history, philosophy and the other subjects frequently grouped under the heading of humanities.

... so the best mind is one that is evenly trained in technical skills and broad humanitarianism. 24
Parsons was dissatisfied with the quality of engineering education in his time, and he urged Nicholas Murray Butler, the President of Columbia and a widely recognized expert on education, to take steps to improve the education of engineers, not only at Columbia but nationwide. In a 1926 letter to Butler, he referred to the prevailing opinion that engineering was a trade and not a profession.

In my own experience I am finding difficulty in getting men who hold the higher ideal. I regret to say that the engineering schools of this country are not turning out that type of man. I know that there is a need for engineers with a broad and cultural development. I also know that the engineering institutions in this country are not providing it.

Parsons acknowledged, however, that “the hour of the trained specialist had come” and, in his 1901 speech to students at Cornell University, urged engineering students to “work in one line,” developing a specialization in one discipline, “and so become one of those machines, which though doing but one thing, yet does that thing perfectly.” But he also believed that such specialization must rest on a broad and liberal education. He told the students:

Broaden your minds, not only with mathematics and science, but with literature and liberal subjects as well...although the ultimate practice may be but a single line, nevertheless the education to carry it...must be as broad, that is as extensive, and as deep, that is as thorough, as it is possible to make it.

In his 1927 address to engineering students at Columbia University, Parsons said that engineers who could competently design bridges, railways and machines were “valuable and highly necessary men,” but if they lacked “the vision to see what is for the use and the convenience of man,” they were technicians and not truly engineers.

It is not the technical excellence of the design that governs, but its adaptability to the economic and social needs of the time. This is the professional aspect of engineering.

Looking forward, Parsons predicted that engineers in the 20th century would have to draw upon a broad range of skills beyond pure engineering in order to address social and economic needs.

The engineer of today, and more especially of the future, will...be concerned not only with his calculations, but will also have to study men and their needs; questions of industrial demand; the laws of finance; and much in regard to general legislation. His it will be to conceive, to plan, to design, to execute, and then to manage.
Chapter 13: Parsons as Writer

From the earliest days of his career, Parsons considered himself a writer as well as an engineer, and he devoted much of the last 13 years of his life to researching and writing three books, including one that would be his *magnum opus*.

A summer job while still a student at the Columbia School of Mines led to his first significant publication, *Endless-Rope Haulage*, published in 1882. The 15-page paper described a mechanical system for hauling coal developed by Parsons and his supervisor at the Blossburg Mine at Arnot, Pennsylvania, where the young Parsons was employed as Assistant Engineer during the summer of 1881.1

Parsons drew on the experience of his first job following graduation—Road Master for the New York and Greenwood Lake Division of the Erie Railroad—in writing a 39-page volume entitled *Turnouts: Exact Formulae for Their Determination, Together with Practical and Accurate Tables for Use in the Field*, published in 1884. In the preface, Parsons described his purpose:

> The aim of the following treatise is to present in a compact and practical form a set of formulae sufficient to solve all problems in Turnout location, and also to give accurate Tables, easily understood, from which the required dimensions for all ordinary cases can be readily taken without recourse to mathematical work.2

A leather-bound copy of *Turnouts*, now part of the William Barclay Parsons Collection at The New York Public Library, includes the following handwritten note by Parsons: “This was my first book—500 copies printed. W.B.P.”

His third significant publication, *Track*, is described in the subtitle as “a complete manual of maintenance of way, according to the latest and best practice on leading American railroads.” In the introduction Parsons wrote that he “endeavored to put into a compact, simple form the latest practice in the maintenance of track as deduced from the accepted methods of the prominent trunk lines of railway in the United States.” The 111-page treatise was published in 1886.3

**An American Engineer in China**

Parsons used his experience of charting the course of a railway in China as the basis of his first full-length book, *An American Engineer in China*, published in 1900. Remarkably, the book says relatively little about the survey itself and the engineering challenges it presented. Instead, Parsons gives his impressions of Chinese culture, which he admired for its historical achievements but criticized for what he considered an excessive reverence for the past and refusal to modernize. Yet he accurately predicted that China in the 20th century would emerge “once more to take her place among the great nations of the earth.”4
Parsons presents himself as the hero of his book, recounting his experiences with obvious pride and occasional humor. He describes most vividly his 500-mile journey through the so-called “closed province” of Hunan. Fearing the xenophobia of the local population, Chinese officials tried unsuccessfully to persuade Parsons not to enter Hunan, where, according to Parsons, he was the first foreigner ever seen. He had many colorful adventures, and his presence in one small town incited a mob of villagers to throw stones at him, but overall he claimed to have had good relations with Chinese “from the poorest peasant through all the grades of society up to those actually next to the throne.”

**The American Engineers in France**

When he returned from his service in France during World War I, Parsons began writing an account of the contributions of American engineers to the war effort. He had already resolved to scale back his involvement in his engineering practice, serving more as mentor and guide to his partners and associates than as a working engineer. For the remainder of his life, he would spend considerable time writing, ultimately producing three more books.

In August 1919, he told his friend Nicholas Murray Butler that he had signed a contract with D. Appleton and Company to write a book that the publisher suggested be titled “The American Engineers in France.” In a humorous letter indicating his amusement at contemplating a career as a writer, he told Butler:

> As I have already written a book on “An American Engineer in China,” I feel as if I were starting a chain of books, to which there might be added “An American Engineer in a University,” “in the Church,” “in sore distress,” etc. ad absurdum.6

In *The American Engineers in France*, published in 1920, Parsons documents the achievements of the 347,600 engineer-soldiers who served in France during the Great War. Parsons contended that World War I was “an engineer’s war” and that the contribution of American, British and French engineers was critical to the Allies’ success and met or surpassed the vaunted engineering prowess of the Germans. Summarizing the achievements of the American engineers, he wrote:

> They constructed and maintained railway lines all over France, they were charged with the responsibility for the highly important light railways that carried ammunition to the forward guns, they repaired cars and locomotives, they dug and held battle trenches, they built bridges [and] assisted in water supply and roads.7
Parsons believed that in military engineering, the speed of construction was paramount. In wartime, he wrote, “the highest type of engineering is that which produces a given result in the fewest hours, regardless of permanence of economical operation.” The achievement of the American engineers, he argued, lay not in “remarkable or spectacular individual pieces of construction, but rather for the large amount of work done as a whole and its widely varied character executed under the most trying conditions.”

Military engineering could also be extremely frustrating, according to Parsons, because work performed under the most difficult conditions was sometimes rendered useless due to the vagaries of war.

In the execution of work during a great offensive there were frequent disappointments and much discouragement. Often after finishing the construction of a bridge, or railway yard or important water point, done under the most trying of circumstances, including rain, wind, cold, little food and sleep, a sudden change in battle plan would render it all unnecessary, or an enemy raid would capture it, or, what was of frequent occurrence, the enemy, advised of the construction, would wait until the last member had been put in place and then, with their long-range guns, knock it all down like a house of cards.

Parsons gives accounts of several key battles of the war, including the celebrated Cambrai defensive (also known as the battle of Gouzeaucourt), in which some of the engineers of Parsons’s regiment, the Eleventh Engineers, were surprised by the Germans while building rail lines and fought with picks and shovels in the American army’s first engagement with the enemy. Parsons, an officer, was not among the soldiers who engaged in that battle, in which the American army suffered its first casualties and which won wide acclaim for the “fighting engineers” of the Eleventh regiment.

In his book, Parsons writes of his great admiration for the British army, with which his regiment served in late 1917 and again in the spring of 1918. Describing the British soldier, he wrote:

The British soldier…was a remarkable person…[with] a cheerfulness that never failed him, never deserted him in the most trying hour of defeat or when sore pressed, a simplicity that never lost its charm or balance even when flushed in the most glowing moment of victory, an ability to accept conditions when he knew they could not be bettered and, therefore, to refrain from complaining, and a constitutional appreciation of the value of discipline. If he had a fault it was his inability to recognize when he was beaten.

Parsons also admired French engineers and soldiers and lamented that because of the language barrier “there was not and there could not have been the same close
intimacy between American and French soldiers as between the former and the British. Then, perhaps, the fact that the [British and Americans] were both strangers in a foreign land made another bond between them.”

The stoicism of the French, subjected to suffering “as no country, no people has ever been called on to suffer,” also greatly impressed Parsons, and he was in awe of the bravery of French women.

In [France’s] defense the women have given more than 1,300,000 sons, husbands, fathers who will never return…The women have submitted to that sacrifice without complaint, and bravely doing what they themselves could do, in maintaining the home, in working in the fields, factories and mines, looking to and hoping for that day when it would all end. This they did with unsurpassed bravery for more than four terrible years, and now it is their lot to live on without those who were or later would have been their mainstays in life. To the women of France all honor!

The bulk of the 415-page book reports on the achievements of the nine regiments of American engineers. Meticulously researched, the book is replete with facts and statistics, although the author does hesitate to draw conclusions. There are separate chapters devoted to the engineers’ efforts on railways (the charge of Parsons’s own regiment), ports, roads, storage yards, forestry, water supply, artillery, camouflage, mapping, trenches and chemical warfare. Parsons comments on the organization of the war effort and advocates for changes in the standing military to make it better prepared than it was at the start of World War I. Summarizing the American engineers’ contribution to the Allied victory, he wrote:

An army of 2,000,000 men had been transported overseas, the railways and roads, ports and wharves, storage yards and depots had been constructed, and the correlated services for water supply, motor transport, camouflage, mapping, chemical warfare and the more delicate operation of range finding had been organized, while trenches had been excavated and dugouts driven. It was a great work. Mistakes, of course, had been committed, but they had been made unavoidable and pardonably. There remained an accomplishment of which the members of the profession of engineering and the people of the country may well be proud.

**Robert Fulton and the Submarine**

In *Robert Fulton and the Submarine*, published in 1922, Parsons examines the life of the American engineer and inventor who lived from 1765 to 1815 and is most well-known for developing the first commercially successful steamboat. With his book Parsons sought to prove—based on papers of Fulton’s that Parsons claims were for-
gotten until they came into his possession—that Fulton “was unquestionably the first one to design a practical vessel capable of submerging and rising at will.”

Parsons wrote the book after he acquired Fulton’s papers relating to submarines he designed, first for the French under Napoleon I, and then for the British. The documents were never published, and, according to Parsons, were ignored until 1870, when they were purchased at auction by an Englishman. They were overlooked by scholars for another 50 years until they were acquired by Parsons in 1920. “Now after a lapse of 116 years,” Parsons wrote, “the interesting story of his work through several years [will] be made of record.”

Parsons traces some of the major developments of Fulton’s life, including his early career as an artist and his work as an engineer of canals. He excludes Fulton’s work on the development of a steam-powered boat in the United States, believing that Fulton’s work on the steamboat, and the basic outline of his life, had been adequately covered by other writers. The book is more a psychological profile than a biography; Parsons was fascinated by Fulton’s inventive genius and also his idealism, impetuousness and naiveté. He devotes a considerable portion of the book to Fulton’s Nautilus submarine, which on July 29, 1800, at Rouen, France, made successful underwater plunges of five minutes and 17 minutes, with Fulton and two others aboard. Parsons wrote:

Though the design of the Nautilus fell far short of that of a modern submarine, nevertheless it was so far ahead of anything previously accomplished or suggested that it entitles Fulton to be credited with being the first to propose a type of vessel capable of plunging and being navigated beneath the surface of the water.

Despite other successful submersions of the Nautilus at Havre and Brest, Fulton was ultimately unable to interest Napoleon in his scheme. The emperor, according to Parsons, considered Fulton “a swindler.” Following his rejection by Napoleon, Fulton, embittered, left France for England. According to Parsons, the vessel that Fulton designed for the British was even more impressive than the Nautilus; it was 35 feet long (as compared to 21 feet for the Nautilus), could carry a crew of six and remain at sea for 20 days. But Fulton failed to persuade the British government of the value of a ship that could submerge itself at will and fire weapons at an enemy, presumably the French.

Parsons takes a generous view of Fulton’s attempts to negotiate with both nations, then bitter rivals. Parsons argues that Fulton believed in Napoleon and the promise of the French Revolution of 1789 only to conclude that Napoleon was a tyrant, and he validates in remarkably florid language the switch of Fulton’s allegiance to England.

A radical republican, hating blindly all forms of autocracy, he had remained in France believing that in France he would see the full flowering of his principles.
He offered his inventions to the French Government, not for pecuniary gain...but because he thought that the French revolution was a real movement toward perfect liberty...When, therefore, he was refused by Bonaparte...we can imagine his revulsion of sentiment and forgive any bitterness of feeling.

France, his dearly beloved France, was no more liberal under the upstart clique of the consulate than was England under the regime of her long established autocracy. This is the only explanation of how and why Fulton abandoned his allegiance to France, went to England and there worked to strengthen the British navy that it might there more easily smash the growing power of the French fleet which he had once so ardently desired to serve. He had been cruelly stabbed by the hands of his friends in the most tender spot in his heart. This cruelty that served to clear his vision he could not forgive, much less forget.17

Fulton, believing that “in the aristocracy of England he could find a truer democracy than in the demagogic leaders of France,” finally left France for England in 1804.

Fulton was but human. His warm heart, artistic temperament and impetuous nature now asserted themselves and drove him back to the country whence his forebears had come, and away from the people whose government powers had wounded his pride and had failed him in his ideals.18

Although he worked for the British government for two years, Fulton was no more successful in advancing his submarine with the British than he had been with the French. After the British destroyed the French and Spanish navies in the Battle of Trafalgar on October 21, 1805, England had little need of submarines. Fulton left England in 1806, “with weary heart and disappointed spirit,” to return to the U.S., where he was finally to achieve professional success and recognition with his work on the steamboat.

Now, at last, he was to win his reward, in the way most dear to him, by receiving recognition of his talents. Though he had the short space of nine more years to live, nevertheless, before they were completed he was to achieve everlasting fame through his steamboat, ‘Clermont.’19

Parsons concludes the story of Robert Fulton by pointing out the irony that Fulton’s invention was ultimately used by the Germans in World War I against the three countries where Fulton had lived and worked.

His submarine plans he had left in England. He dismissed them from further consideration in the excitement of his other success. Then came his death, and his plans lay dormant. Others were to work over the same idea and bring it after
many trials to perfection, until finally after an interval of more than one hun-
dred years, it was to become, as Fulton foresaw, a great offensive force. It was
then to be used, but not as he could have imagined, against the three countries,
jointly, that he served and loved in turn.20

**Engineers and Engineering in the Renaissance**

Parsons spent much of the last decade of his life researching and writing *Engineers and Engineering in the Renaissance*, a 661-page tome that includes more than 200 illustrations, an extensive bibliography and 26 pages of appendices. The manuscript, left unfinished at his death in 1932, was published seven years later through the ef-
forts of his widow, Anna Reed Parsons, and his children, William Barclay Parsons
and Sylvia Parsons Weld, who engaged John Strong Newberry of Harvard University
to prepare the document for publication.

The book was reprinted in 1968 by The M.I.T. Press, with the deletion of the first
two chapters, in which Parsons discusses the period leading to the Renaissance, which
he defines as the 150 years from the capture of Constantinople by the Turks in 1453 to
the death of Queen Elizabeth I in 1603. The publisher said it omitted the chapters “since
better accounts can be found in many standard histories of the Renaissance.”21

By 1924, Parsons had completed a draft of the first four chapters of the book,
which he sent to Butler for comment. “I want to put the book on a much higher
plane than a mere technical discussion of the subject,” he wrote. “I want to connect
it with the social development of the age.”22

In reply, Butler wrote: “You are making the engineering practice of the time grow
out of its social and cultural prepossessions, and you are doing it in a way which we
laymen can understand.”23

In his introduction to the 1939 edition (which was deleted from the 1968 M.I.T.
reprint), Butler pointed out that Parsons wrote the book because he believed that
while “men knew the history of architecture, they had practically no knowledge of
the history of engineering,” adding that “no previous study of the history of engineer-
ing accomplishment” compared with Parsons’s “in scope, in richness of knowledge
or in skillful interpretation” of the material.24

Parsons devotes separate chapters of the book to such subjects as surveying, the
development of machines and engines, mining, metallurgy, river engineering, canal
engineering, water supply, locks, ports and harbors, sewerage, roadways, street paving,
trade unions and building regulations, among other topics. He also examines the con-
struction of some of the most renowned structures of the era, including the Rialto
Bridge over the Grand Canal in Venice, the Pont Neuf in Paris, the Santa Trinita Bridge
in Florence, the dome of the cathedral of Santa Maria del Fiore in Florence (which Par-
sons notes precedes the Renaissance), and the dome of St. Peter’s Basilica in Rome.
Three chapters of the book are given to Leonardo da Vinci, in Parsons’s view the ultimate Renaissance man. “I am referring to Leonardo da Vinci as one of the greatest broad intellects that ever were,” he wrote to Butler in January 1930.

Not a specialist like Napoleon, or Newton, or Shakespeare, but as one touching many fields and in each one of which he was a master. Leonardo was a philosopher, writer, painter, sculptor, architect, engineer, mathematician, man of science, paleontologist, zoologist, botanist and anatomist. In each one of these fields he was the peer of any man then living while in some, particularly those relating to science and anatomy he was ahead of his time by from 100 to 250 years.25

In the book, Parsons declares that “the total of [Leonardo’s] accomplishments far transcends that of any other man” but concludes—as other scholars of Leonardo have—that despite his prodigious talents, Leonardo’s insatiable curiosity and his failure to finish much of what he started left him “always just short of success.”26 Leonardo’s great achievement, according to Parsons, was his invention of a way of thinking based on experimentation and reason.

That he made mistakes was inevitable and that he failed sometimes to separate the chaff from the wheat is true, but these failures are easily pardoned when the wide scope of his inquiries is considered and it is remembered that he accomplished what no man had ever attempted—the construction of the basis of sound reasoning.27

Parsons’s primary interest in Leonardo, of course, was his career as an architect and military and civil engineer. “Engineering was the field in which his intellectual abilities found the broadest opportunities for creative expansion,” wrote Parsons, who summed up Leonardo as engineer thus:

In engineering he was able to apply theory to the use and convenience of man, and in this field could satisfy one of his most treasured ambitions in work which appealed to his imagination—observation, research, and test by experiment. His mind was thoroughly practical; nothing in his opinion mattered unless it had application of value. Engineering, therefore, gave him full scope, as perhaps nothing else did, to satisfy his intellectual craving for a substantial physical result.28

The other popular hero of the Renaissance, Michelangelo, does not receive as much attention from the author, probably because the manuscript ends, abruptly, during a discussion of Michelangelo’s work on the dome of St. Peter’s Basilica.

Michelangelo. . . was another of those combinations of several types of genius of which the Renaissance produced so many examples. He was a painter, sculptor, architect,
poet and engineer, excelling in each capacity, and his engineering work was in the fields both of military and civil practice, a fact that is frequently overlooked.29

Ultimately Parsons concluded that “in Michelangelo, the artist surpassed the engineer.”30

**Cataloging the Vatican Library**

Parsons researched *Engineers and Engineering in the Renaissance* in some of the great libraries of Europe, including the British Museum, the Bibliotheque Nationale in Paris, the Uffizi in Florence and the Vatican Library in Rome, but he was frustrated at their inefficiency. “I am working hard in the libraries,” Parsons wrote to Butler from Florence in 1925. “But how slow they are!” In an amusing account that indicates that Parsons was a man used to getting his own way, he described for Butler his good-natured frustration with European librarians.

They suggest that I should leave my calls one day to be received the next. I thought Paris was slow, but it is lightning compared with Florence, though the latter is more generous in that no limit as to number of calls is set. At Paris after asking for the eighth manuscript I was told that I could ask for no more that day! And it was only 11:30. Of course I got it adjusted. One always does in France.31

Parsons found the holdings of the Vatican Library almost inaccessible because of its lack of a catalog. He wrote to Butler in 1925 suggesting that the Carnegie Endowment for International Peace assist the Vatican in developing a modern system of classification. The Carnegie Endowment agreed and Pope Pius XI enthusiastically endorsed the idea. Subsequently, the two clergymen then in charge of the Vatican Library studied library administration in the United States and invited American librarians to assist them in developing a modern cataloging system. “All this took several years to accomplish, and its fortunate results have exceeded all expectations,” wrote Butler in the introduction to the original edition of *Engineers and Engineering in the Renaissance*. “Today there is no more modern or better arranged library than that at the Vatican and hundreds of research workers and scholars from all over the world are keeping it in constant use.”32

Parsons was enormously pleased with the project. Six years after making his original suggestion, he wrote that he had spent “a most delightful morning at the Vatican” with Monsignor Tisserant, one of the Vatican officials in charge of the cataloging project, who Parsons said was “doing his task with consummate care and skill.”33
His Own Library

A well-known bibliophile, Parsons amassed an extraordinary collection of books and manuscripts in the process of researching *Engineers and Engineering in the Renaissance* and his other books. “I will buy any book of any date down to 1860 on construction if it is a good one,” Parsons told a reporter for the *New York Herald* in 1911.34 His own collection of more than 2,000 books, manuscripts and drawings was donated by his family in 1934 to The New York Public Library, which Parsons served as a Trustee for 21 years, from 1911 until his death in 1932.34

The collection includes publications from the 15th through the 20th centuries. Among the earliest volumes are Euclid’s *Elementa Geometriae* (1482), *De re Militari* by Valturius (1483) and a treatise on construction published in 1485 (*De re Aedificatoria*, by Leone Battista Alberti). Other notable works in the collection include works by Vetrivius and the 1912 English translation of Agricola’s *De re Metallica* (1556) by U.S. President Herbert C. Hoover and his wife, Lou Henry Hoover.

In addition to extensive material relating to the Renaissance, Parsons’s collection includes volumes on railroads and canals, military engineering (principally relating to World War I), the Panama Canal, and the papers of Robert Fulton that Parsons acquired in connection with his book on the inventor. “The entire collection, as a whole, is the historico-social aspect of man’s technical genius in certain fields of endeavor,” according to The New York Public Library’s introduction to the catalog of the William Barclay Parsons Collection.35

Parsons’s collection of some 235 transportation prints from 1820-1880, which “centered on and reflected his overwhelming interest in the great epic of railroad achievement,” was donated to Columbia University by his family in 1934.36

At Work Until the End

Parsons’s work on his final book was the primary focus of the last decade of his life. “I am struggling with my book on Engineering During the Renaissance and if I am to complete it I must buckle down and give it my undivided attention,” he wrote to Butler in 1929.37

Two years later, he was still at work on the book, and relishing his task. “I am rejoiced this morning to receive a copy of the Benaglio,” he wrote to Geralmo Calvi of Milan, who assisted Parsons with his research. “I am trying to build up the story, piece by piece, of where, how and by whom the first locks were constructed…the piecing of the data to make a whole is as much fun as constructing a picture puzzle.”38

It is impossible to know how much more Parsons planned to write before his death on May 9, 1932, following surgery at Columbia-Presbyterian Medical Center, but it is clear that he was enthusiastically working on the book, attending to his du-
ties as Chairman of the Board at Columbia University, and feeling youthful and vigorous until a pulmonary embolism felled him at the age of 73. In a letter to Butler written about a month before his death, he wrote: “This will be a busy day, and perhaps a wee bit hectic, but so long as I keep young I do not mind hurrying. My mind is still good, but it is not ‘up.’”

Parsons underwent an operation for an arm infection in April 1932, which was thought to have been successful, but a blood clot partially closed a pulmonary artery and another operation was performed about five weeks later, on May 8. His son, a surgeon at the hospital, was present during that operation. “His physicians believed he was recovering, but late Sunday night [May 8] his strength began to ebb suddenly, and death came in a few hours,” according to an obituary in the *New York Herald Tribune*. Following a funeral attended by more than 1,000 at Trinity Church, William Barclay Parsons was laid to rest in the churchyard of All Saints’ Church near his home in Navesink, New Jersey.
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