

David Sarnoff, RCA, and the Rise of Broadcasting

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David Sarnoff, president of RCA.

Brigadier General David Sarnoff commanded what radio pioneer Lee De Forest called, “an Invisible Empire of the Air, intangible, yet solid as granite.” This invisible empire became, under Sarnoff’s guidance and stewardship, the foundation for today’s electronic mass media.

At the tender age of fifteen, David Sarnoff took a job as office boy for the firm that became the Radio Corporation of America (RCA). Quickly climbing the ranks to high-level management, he foresaw radio’s commercial potential and helped it grow. After he ascended to the presidency of RCA in 1930, the post he held for the next forty years, Sarnoff fostered another new mass media technology: television.

Sarnoff chalked up some of his success to good fortune. “I was lucky that at an early age I hitched my wagon to the electron,” he said in 1967. But timing wasn’t everything. “The uniqueness of David Sarnoff lies in his combination of a visionary and determined builder and hardheaded industrial leader,” wrote the MIT scientist Dr. Jerome Wiesner.

An Immigrant Boy is Present at the Creation of the Wireless

David Sarnoff was born in 1891 in Uzlian, a tiny Jewish village near Minsk. When David was five, his father, Abraham Sarnoff (a house painter) immigrated to the United States, and his mother sent her precocious son off to a yeshiva in Borisov. David quit his study of the Talmud when, in 1900, Abraham had saved the \$144 needed to book passage for his family’s arduous journey to New York City’s Lower East Side. “As an immigrant boy, I was tossed into the bewildering whirlpool of a metropolitan slum area, to sink or swim,” Sarnoff recalled.

David hawked Yiddish newspapers like the *Tageblatt* and *Forverts* on the street and took on the responsibility of supporting his family when his father fell ill soon after the Sarnoff’s arrival in America. David borrowed \$200 and bought a newsstand at 10th Avenue and 46th Street. In 1906, when his father died, David Sarnoff decided he’d rather write for newspapers than sell them. He intended to present himself at the *New York Herald*. By mistake, he wandered into the offices of the Commercial Cable Company, a telegraph concern that rented space in the same building. “I don’t know about the *Herald*, but we can use another messenger boy in our shop,” said the manager.

The fifteen-year-old Sarnoff had stumbled into the communications industry at a propitious moment. Since the mid-nineteenth century, people had been sending messages over wires in Morse code. But at the turn of the century a revolutionary new mode of communications was beginning to percolate: the wireless telegraph.

Throughout Europe and America, tinkerers were experimenting with ways to zap electronic impulses through the ether. In 1901 Guglielmo Marconi had successfully completed the first transatlantic wireless transmission. In a matter of seconds, an electronic impulse signifying the letter “5” traversed the same distance it had taken the Sarnoff family several weeks to travel.

While working as a five-dollar-a-week courier, Sarnoff learned to operate the telegraph. In an ironic piece of good luck the Commercial Cable Co. fired him when he asked for three days off to attend Jewish high holiday services. He quickly found work as an office boy with the U.S. unit of British-owned Marconi Wireless Telegraph Co. In 1906 Sarnoff introduced himself to the great inventor. “We were on the same wavelength,” he said. In the coming years, when Marconi would visit the office, Davey, as he was known, would act as his personal assistant, running errands and arranging trysts.

Having proved himself in New York, the seventeen-year-old Sarnoff was sent to work at the Marconi station on the then remote outpost of Nantucket in 1908. The position paid \$70 a month and afforded him the use of the station’s extensive library. Davey wasn’t interested only in using the wireless radio as a tool. He wanted to know how and why it worked. As Jack Irwin, operator of the Nantucket station, later wrote of Sarnoff: “He was so enthusiastic about radio that he stood a great part of my watch, voluntarily, and thereby allowed me to play tennis and otherwise enjoy the summer advantages of Nantucket.” And when he was off watch, the ambitious teenager worked on correspondence courses in mathematics.

In 1909 Sarnoff returned to New York to work at a Marconi station in Brooklyn, where he continued his education, devouring every scientific journal he could find at the New York Public Library and taking an advanced electrical engineering class at the Pratt Institute. After several months in Brooklyn, Sarnoff was promoted to run the wireless station atop the Wanamaker department store in Manhattan. On April 14, 1912, the *Titanic* began sending S.O.S. signals over its wireless system. Sarnoff rushed to his post, and listened anxiously as the rescue effort began, gleaning details relayed from a Marconi-equipped ship in the doomed liner’s vicinity. He provided transcripts to William Randolph Hearst’s *American*, which sensationalized the findings and mentioned Sarnoff’s name. “The *Titanic* disaster brought radio to the front, and also me,” he said.

Radio and Sarnoff Emerge as Commercial Powerhouses

Despite his early fascination with technology, Sarnoff decided to shift his career path toward radio as a business. As his colleague Robert Marriott later recalled, Sarnoff maintained in 1913 that “the place to make money is where the money is coming in. . . . I am going to solicit the sale of contracts and service that will bring money into the company.”

In 1914 vice president Edward Nally transferred Sarnoff to the Marconi headquarters and gave him responsibility for inspecting wireless equipment on ships and shoreside facilities in New York Harbor, as well as the job of evaluating new wireless devices.

In the fall of 1916, Congress considered granting licenses to the Navy to operate radio stations in direct competition with privately operated stations. Nally took Sarnoff with him to Washington to protest the congressional move. Summoning up the immigrant’s instinctive feel for American freedoms, he called such a measure “a continuous military inquisition into private correspondence, an undemocratic and dangerous institution.” Sarnoff was only twenty-five years old, and already he had taken his first steps toward becoming the spokesperson for the new industry.

At this time, Sarnoff and a few other experimenters believed that the wireless could be used for another, more commercial purpose—public entertainment. In 1915 he wrote a prescient memo to company executives: “I have in mind a plan of development which would make a radio a ‘household utility’ in the same sense as the piano or the phonograph. The idea is to bring music into the home by wireless.” The company, he recommended, should erect a powerful transmitter, and then sell small receivers, equipped with antennae and amplifying tubes,

to receive different wavelengths. “Baseball scores can be transmitted in the air by the use of one set installed at the Polo Grounds,” Sarnoff wrote. If just one in fifteen American families bought a \$75 radio, he calculated, this product could quickly garner \$75 million in sales.

Marconi executives shelved the memo. But as Sarnoff’s plan sat idle, others were making waves with similar ideas. In 1916, the inventor Lee De Forest started his own primitive station, airing music and lectures. And after World War 1, during which armies had attempted to use wireless in combat, there was a growing realization that radio could help wire the world together. “Do you not know the world is all now one single whispering gallery?” said President Woodrow Wilson in a 1919 speech in Des Moines. “The tongue of . . . with the wireless and the tongue of the telegraph, all the suggestions of disorder are spread through the world.”

Since its inception in 1899, American Marconi had been a subsidiary of a British firm, the Wireless Telegraph and Signal Company, Ltd. This foreign ownership troubled the Wilson administration. So the government induced the dominant American electronics firm, General Electric, to buy a controlling interest in American Marconi. In 1919, GE rechristened the firm the Radio Corporation of America. While the GE executive Owen Young became RCA’s chairman, much of the old Marconi staff remained intact. Sarnoff, who had been appointed commercial manager, stayed on with an \$11,000 annual salary. His responsibilities now included supervising hundreds of employees at nearly 400 company outposts throughout the world.

With a gross income of just \$2 million in 1920, RCA was a tiny piece of the \$272-million General Electric. But RCA was destined for greater things, and the vehicle for its rise would be commercial radio. In 1920, after noting the small-scale successes of other radio pioneers, Sarnoff again pitched the radio “music box,” this time in a twenty-eight-page memo to Young. “We must have suitable apparatus for sale before we can sell it in large quantities,” he wrote. Fusing a visionary’s capacity for dreaming with a keen eye for the bottom line, Sarnoff laid out a detailed business plan: The company would sell 100,000 radios for a total of \$7.5 million in the first year; 300,000 for \$22.5 million the next year; and 600,000 in the third year for \$45 million.

After GE approved a \$2,000 investment for a prototype, Sarnoff set to work producing a practical radio. He kept an eye on area scientists and investors who were developing radio technology, in particular, Dr. Alfred Goldsmith, a professor at City University of New York. RCA hired Goldsmith, on the recommendation of Sarnoff, to run the company’s new research facility in the Bronx, and Sarnoff paid frequent visits to the laboratory, acting as liaison between corporate headquarters and the scientists. As Owen Young later said, “David had sensitive ears. . . His ears were sensitive to the scientists.”

But manufacturing a radio was only half the challenge. Radio had to find a public market. Realizing that companies would have to produce programs to which Americans would listen, Sarnoff arranged for RCA to broadcast a boxing match between Jack Dempsey and Georges Carpentier in Jersey City in July 1921. In what may have been the first major sports broadcast in the United States, an estimated 400,000 enraptured fans listened—on homemade radios and those in public arenas—as Dempsey knocked out his French opponent in the fourth round. With the success of this broadcast and others like it, radio broadcasting stations began to sprout up across the United States. The number of stations rose from 30 in 1922 to 556 in 1923. Such mass audiences made broadcasters realize they could sell air time to companies. And when WEAJ, a New York station owned by AT&T, aired an advertisement by the Queensborough Corporation real estate firm in August 1922, commercial radio was born.

The radio emerged quickly as a popular consumer product. Industry-wide production rose from 100,000 sets in 1922 to 500,000 in 1923, when Sears Roebuck began to sell radios made by various manufacturers through its many outlets. To hasten the spread of radio and to avoid potential antitrust action from the government, RCA licensed its patents and sold components so rivals could produce their own versions. Company executives intuitively understood that the proliferation of radio devices would ultimately serve their interests. As a result, RCA did not monopolize the business. In 1922, for example, RCA was responsible for only about \$11 million of the \$60-million radio industry.

Binding a Nation Together Through a Radio Network

Sarnoff saw radio as far more than a means of transmitting blow-by-blow accounts of boxing matches. As *Forbes* noted in 1927: “Radio, to him, is a new dimension of human life. It must be compared, not with mere inventions such as the automobile and the flying machine, but with the discovery of fire or the advent of language in human affairs.” Sarnoff believed that radio had the ability to change the way Americans related to each other and to their government. “For the first time in the history of an American Presidential election, rival Presidential candidates will appeal through the forum of the air to the American electorate,” he predicted in April 1924, noting that radio had “made it possible for millions to follow every move in the convention hail.”

But if radio were to provide common experiences for a nation, it would require a new mode of delivery. That mode, he decreed, would be a national radio network. In 1922, at Sarnoff’s request, RCA had set up two stations in Manhattan, WJZ and WJY. Both could reach audiences within a thirty-mile radius of the city. But engineers quickly devised the means to pipe radio sounds through telephone lines to stations in other cities. So in 1926, when some five million American homes had radios, RCA stitched together a chain of stations to form the National Broadcasting Company. For the first time, a program created in a New York studio could be piped simultaneously to stations in Texas, California, and Maine.

As radio expanded nationwide, Sarnoff made increasingly extravagant projections: “Radio may end war, for its mission is to bring the whole world into friendly communication,” he said. “Wars result from misunderstanding; when people understand each other, they are pretty likely to become friends.” Sarnoff viewed such public musings as an important part of his role to promote and defend the new medium. In 1927, when H. G. Wells wrote a *New York Times* article calling radio an “inferior substitute for better systems of transmitting news or evoking sound,” Sarnoff felt compelled to fire back: “The fundamental basis of broadcasting is a service to the many, not to the few.”

Sarnoff’s public activities elevated him to a major figure in the radio industry. “. . . Although still a young man, he now holds the position of vice president and general manager of the great Radio Corporation of America and is consulted constantly by the great leaders, not only in the world of business and industry, but in the world of science, too,” *Forbes* wrote in 1927.

Stock in RCA, known simply as Radio, rose from \$10 in the early 1920s to above \$200 in June 1928. Throughout the decade, the company rarely paid dividends, preferring to plow cash back into research. Riding the crest of the radio wave, RCA posted a \$15.9-million profit on sales of \$176.5 million in 1929. David Sarnoff’s stock rose too. When he was appointed executive vice president in 1929, radio was a \$842-million business; unit sales rose from 650,000 in 1928 to 842,548 in 1929.

Forging Ahead with Television During the Depression

As early as 1927, in yet another visionary forethought, Sarnoff had discussed the possibility of developing “theaters of the home.” Just a decade after the radio was first conceived as a consumer product, scientists in separate laboratories were developing the means to transmit a picture through the air electronically. Sarnoff believed this breakthrough could add a new dimension to radio. In 1929, when the Russian scientist Vladimir Zworykin demonstrated the iconoscope (a scanning technology that formed the basis of early television), Sarnoff hired him and supplied him with research facilities. This marked the beginning of a twenty-year, \$50-million drive to re-create RCA’s radio success in the new medium.

In 1929, Sarnoff told the *New York Times*: “The world moves so quickly that it is hard to keep apace with the times.” But the Depression brought the promising technological developments and expansive consumerism to a dead halt. Between 1930 and 1933, RCA’s sales shriveled from \$137 million to \$62 million, and its bottom line collapsed. Profits eroded from \$5.5 million in 1930 to a \$582,000 loss in 1933. Amid the difficult times, however, radio proved its worth by broadcasting Franklin D. Roosevelt’s vaunted “fireside chats” that helped sustain a troubled nation throughout the Depression.

It was during these hard times that Sarnoff came to the fore. When Owen Young stepped down to attend to personal financial difficulties in 1930, David Sarnoff rose to become president of RCA at age thirty-nine. He gained an even greater degree of independence in 1932, when, after extensive antitrust proceedings and negotiations, GE and Westinghouse were forced to divest their RCA shares. While the economic climate was far from healthy, Sarnoff found himself with a free rein to focus on the company's core business—radio and radio broadcasting—and to push into new areas, like television.

Sarnoff oversaw the effort from RCA's new offices on the fifty-third floor of 30 Rockefeller Center. Completed in 1933, the art deco complex was a temple to progress and technology. It was the world's largest office complex, featuring 2.7 million square feet of work space, murals depicting technology and commerce, speedy elevators, and a rooftop observatory. As the author Tom Lewis wrote in 1991: "To Sarnoff, Rockefeller Center physically embodied everything that was important about American business, especially businesses run the way he wished them to be, like the Radio Corporation of America."

With RCA's financial health restored in 1934—earning \$4.29 million on \$79 million in sales—the company continued to invest in television technology. In 1935, Sarnoff had laid out a plan to establish a transmitting station and manufacture a few receiving sets. He kept tabs on the company's development of television through frequent visits to RCA's laboratory in Camden, New Jersey. Despite his fascination with the future and infatuation with contemporary technology, Sarnoff favored an old-fashioned style of management. In 1936 a public relations consultant asked to see an organizational chart of RCA's top management. "This is a company of men, not of charts," Sarnoff replied. More probably, he considered it a company of one man. An "old-timer" in his late 40s, D. S., as Davey was now known, was the king of radio. In 1938, with 142 stations, RCA could reach more of the twenty-five million radio owners at one time than any other company. In twenty years it had risen from a tiny subsidiary of GE to a vertically integrated entertainment and communications powerhouse with revenues of \$110.5 million and profits of \$8 million in 1939.

Radio waves coursed everywhere, creating communication for people on ships, in cars, in their homes and offices. As the decade came to a close, however, Sarnoff stood on the verge of breaking open a new frontier. At the opening of the World's Fair in New York on April 30, 1939, Sarnoff spoke into a television camera at one of the nation's first live broadcasts. "Now we add radio sight to sound," he proclaimed. "It is with a feeling of humbleness that I come to the moment of announcing the birth in this country of a new art so important in its implications that it is bound to affect all society. It is an art which shines like a torch in a troubled world." That year, RCA started selling television receivers for \$625 a set. But the outbreak of World War II diverted the resources, attention, and time of RCA's scientists and executives to more vital projects.

RCA Pioneers Television After World War II

"In war, science dares the impossible; it must continue to dare the impossible in peace if a fuller life is to permeate society," Sarnoff said in 1946, when RCA introduced a television set priced at \$375. Americans yearned to watch events like the World Series, political conventions, concerts, and other programs they had been hearing for decades. With the end of World War II, consumers were eager to indulge themselves with entertainment. Sales of televisions quickly soared, from 175,000 in 1947 to seven million in 1950, and nearly half of those carried RCA's name. In the 1952 calendar year alone, the number of TV sets owned by Americans rose from 15 million to 21 million. They had so permeated the market that in 1952 Sarnoff estimated 47 percent of American families had a television in their homes.

RCA stood ready to exploit this boom by providing programming as well. In 1953, the NBC television network began broadcasting. NBC filmed programming previously produced for radio, and beamed it through coaxial cables to the 238 affiliated stations that had cropped up all over the country.

In September 1951, RCA held a ceremony to honor Sarnoff's forty-five years in the business. But rather than rest on the company's laurels, he challenged its scientists to come up with three new products by his fiftieth

anniversary in 1956: a true amplifier of light that would boost the quality of pictures; a device that could record video signals on inexpensive tape; a new electronic air conditioner for the home. “The housewife’s dream of an all-automatic home will be realized,” Sarnoff wrote in a 1956 *New York Times* article. “The days’ chores in the house will be prescheduled, with each of the tasks performed electronically.”

Adding Color to the Magic of Television

For years, RCA and NBC’s long-time rival in the radio business, CBS, had been trying to develop a system that could deliver color pictures. The Federal Communications Commission (FCC), eager to establish a standard, approved a system devised by CBS in October 1950. In so doing, the FCC overlooked RCA’s system, which was still, admittedly, in development. Sarnoff was undaunted by the setback. “We may have lost the battle, but we’ll win the war,” he said.

CBS didn’t rush to manufacture color sets because color was not compatible with existing cables. And in 1953 CBS abandoned it entirely. Meanwhile, RCA’s scientists continued to plug away at a system that could send color over existing cables to run on twenty-one-inch screens. RCA brought a twenty-one-inch color set to the market in 1954. Though relatively cheap—\$795 in 1955—color television was slow to catch on. Black and white sets were still more affordable and color TV’s quality was bad. Sarnoff had forecasted that sales would quickly grow to 75,000 in 1954 and to 3 million in 1957. But by 1958 just 325,000 color sets had been sold. Bob Hope joked that color television had “a tremendous audience—General Sarnoff and his wife.”

Putting Business in Service of the Nation

RCA first introduced a television for commercial distribution in 1939. But World War II stopped the designers in their tracks. Possessed of an unflinching sense of duty, Sarnoff immediately put his great enterprise on hold in order to serve his adopted country in a time of crisis. On Dec. 7, 1941, he sent a radiogram to President Roosevelt. “All our facilities and personnel are ready and at your instant service. We await your commands.”

RCA’s 22,000 employees had a great deal to offer to the war effort. Ten months after Pearl Harbor, RCA opened its \$2-million research center in Princeton, New Jersey. The scientists immediately went to work developing communications and technology that could be used by the armed forces. “More than ever before in history, this war is a contest between the brains and imagination and teamwork of the scientists, engineers, and production workers of one group of nations pitted against those of another group,” said Sarnoff, who immediately went on active duty as a colonel in the Signal Corps, and was later promoted to Brigadier General. World War II was the first war in which radio was widely used by all combatants. Technology, whether it was the airplane, the Enigma encoding machine, or the atomic bomb, provided the margin of victory.

Sarnoff’s personal contribution to the war effort was also significant. In 1944 he set up shop in London, where he coordinated broadcast, press, and internal army communications for the massive D-Day invasion.

Sales of black-and-white televisions continued to grow, however, and the company’s TV network proved to be a smashing commercial success. As a result, RCA’s revenues approached \$1 billion in 1954. While the company had grown into a very large modern corporation, there remained an intense identification between David Sarnoff and RCA. In the 1950s the annual report was always issued on Sarnoff’s birthday, February 27. “Have faith and confidence in Uncle Sam of the United States of America and in Daddy David of RCA,” one shareholder said. Intent on keeping the family in the company’s management, Sarnoff elevated his son, Robert, to president of NBC in 1955.

Robert took over at a time when the initial failure of color television stunted RCA’s growth. Between 1952 and 1962 the company’s sales rose 154 percent, but profits fell 24 percent. And for much of the latter half of the expansive 1950s, RCA’s stock remained stuck in low gear, the result of its cumulative \$130-million investment in color. But the investment began to pay dividends as the market finally began to come around. Sales of black-and-white sets declined from 7.4 million in 1955 to 5.1 million in 1958, as consumers slowly switched to color. In 1960, Walt Disney shifted his “Wonderful World of Disney” show to NBC so it could appear in color. The following year, color television grew to a \$100-million industry. RCA, cornering nearly 70 percent of the market, had become the nation’s twenty-sixth largest company with \$1.54 billion in sales.

Even as he grew older, Sarnoff continued to dream. “Science and technology will advance more in the next thirty-six years than all the millennia since man’s creation,” he wrote in 1964. “By the century’s end, man will have achieved a growing ascendancy over his physical being, his earth, and his planetary environs.” Come the year 2000, he foretold, the ocean would be cultivated for crops, electronic devices would regulate impaired human body organs, newspapers would appear in simultaneous editions all over the world, and overseas mail would be transmitted via satellite by means of facsimile reproduction.

Sarnoff finally retired from RCA at the age of seventy in 1969, the year Neil Armstrong took his first tentative steps on the moon and reported his progress back to an enraptured American audience via wireless. Despite Sarnoff’s battle with a variety of illnesses, he could not let go of the company he had helped to build. “I cannot separate RCA and Bob and David Sarnoff,” he said. When David died on December 12, 1971, the communications industry, which began with wireless technology scarcely a century before, had revolutionized human life and made an incredible impact on how people view the world. “The electron has lifted RCA from a small company with a humble beginning and with very modest means to the role of leader in a great industry,” he said back in 1954. David Sarnoff may well have said the same about himself.