

## David Sarnoff and His RCA

*By Brian Belanger*

### Introduction

Along the stairway to the second floor of the Museum are displayed about a dozen photos of individuals that we felt were deserving of recognition for their roles in the history of radio and television. David Sarnoff's photo is included. It is certainly appropriate that his story and how he shaped RCA, the Radio Corporation of America, be told in *Dials and Channels*.

Sarnoff is a controversial figure. His supporters have called him a visionary and a genius, and are in awe of him, while critics have described him as a ruthless egotist. A case might be made for either label. I recognize Sarnoff's shortcomings, yet I admire him for reasons that will become clear later in this article.

This article's title may cause you to pause. "His RCA?" But as you will see, it is not much of a stretch to describe the Radio Corporation of America as "His Company." While Sarnoff did not found RCA, he, more than anyone else, almost singlehandedly determined what it ultimately became. For decades he managed the company with tighter control than most other large corporation heads. RCA's board nearly always did Sarnoff's bidding. After reading this article, you can decide whether you deem it reasonable to call RCA "His Company." Sadly, shortly after he stepped down, RCA began a downward spiral, and this great company died.

Two Sarnoff biographies have been published (see Sources). Author Eugene Lyons was Sarnoff's cousin and good friend, so naturally he was disinclined to be critical. In fact when David Sarnoff read the first draft of Lyons' manuscript and saw that the author had included items casting a negative light on him, he

threw a tantrum. He ordered all copies of the first draft destroyed and rewrote sections himself. Book critics were quick to comment on how over-the-top laudatory the sanitized version was. It did not sell well.

A later and more balanced biography was authored by Kenneth Bilby after Sarnoff's death. Bilby was Sarnoff's public relations manager and a close associate. This article relies heavily on that source. Any author outside of RCA intending to write a Sarnoff biography who sought access to company records would probably have received cooperation in proportion to how likely that author was to praise



David Sarnoff, teenage office boy for American Marconi.

Sarnoff. He did have a huge ego, and was unlikely to correct the record should anyone circulate a story that overstated his contributions.

Sarnoff's life story has sometimes been cited as a classic "rags to riches" tale of an impoverished immigrant, who, through hard work, eventually becomes the CEO of a major U.S. corporation. "Rags to riches" may be an overstatement. Actually, Sarnoff, while living comfortably, in his later years, never became nearly as wealthy as a Mark Zuckerberg or a Bill Gates. In Sarnoff's era CEOs did not receive the huge salaries and stock options that are more common today.

Except for a brief period as a teenager, David Sarnoff spent his entire career at RCA. It is fair to say that he built that company into an electronics giant. He got his satisfaction not from accumulating wealth but from envisioning possible new developments in electronics and then making them a reality. General Electric executive Owen Young described Sarnoff as a man who "had that rare combination of permitting his head to be in the clouds and keeping his feet on the ground."

### **Sarnoff's Early Years**

David Sarnoff was born in 1891 in Uzlian, a small impoverished village near Minsk where several hundred Jewish families lived in small wooden homes, many with dirt floors. Except for paying modest taxes and possibly having to serve in the Czar's army, villagers had little contact with the outside world. Uzlian's rabbi was the most important resident, almost like a mayor. The synagogue was the town center where everyone gathered.

There was no wealth in Uzlian, hence social status was determined by good deeds and how well one knew the sacred texts. Sarnoff's family was respected because it had produced rabbis and valued education. David's mother Leah had married Abraham Sarnoff, a house painter. A pious man, he suffered from ill health (probably tuberculosis) and struggled to make a living to feed his growing family.

Because David, the first-born son, was a bright boy who learned fast, his family thought he should become a rabbi. His grandmother asked her brother, a rabbi in Korme, a town a few hundred miles away, to board and teach David. So at age five, David left his family and spent long days studying the Talmud in Aramaic, memorizing page after page.

Around the turn of the 20<sup>th</sup> century, millions of Russian Jews emigrated to the United States, to

avoid having to serve in the Russian Army, to avoid pogroms and anti-Semitism, and to seek economic opportunities in the U.S., perceived to be better than in Russia. Abraham decided to join the emigres and try to save enough to bring his family to him, an effort that took four years.

In 1900, David, his mother, and his two younger brothers, came to the United States in steerage. Most of the passengers were seasick on the miserable voyage. The family reconnected with Abraham and moved into a three-room run-down tenement on New York's Lower East Side. It soon became clear that Abraham was too sickly to make a decent living. Nine-year old David quickly recognized that unless he could generate some income, the family might starve.

### **Life in the New World**

Upon arrival David spoke no English. Coming from a tiny town like Uzlian to a bustling metropolis like New York City must have been a major culture shock. Neighborhood kids mocked him and made him feel like an alien. Fortunately he was a fast learner and picked up English quickly. Soon he was up before dawn every day selling newspapers on the street. The few pennies he brought home (he made 25 cents for every 50 newspapers sold) often made the difference between eating and not eating.. Because of his need to spend every spare moment working to support the family, David never had a childhood.

His family soon included another brother and a sister, making seven mouths to feed. In addition to hawking papers, David earned money by running errands for a butcher shop, selling candy in theaters, singing soprano in a synagogue, and any other odd jobs that came his way. He hired his brothers and other kids to help him distribute newspapers.

By the end of his first year in the United States, David spoke English reasonably well. He read the newspapers he handled to increase his vocabulary. This exposure to the newspaper business made Sarnoff think he might want to be a newspaper writer when he grew up. He attended public schools during the day and took evening classes at the Educational Alliance, an East Side charity that helped immigrants become assimilated. David found it more helpful than the regular school.

When David was fifteen, his father's health further deteriorated. It became clear that for the family to survive, he would have to drop out of school and get a full-time job. Because he found newspapers interesting, and English was his favorite subject in

school, David decided journalism was right for him. He set out to find a job with a newspaper. Perhaps he could start at the bottom and someday graduate to writing editorials.

Early in 1906 David put on his only suit and marched into the office building of the *New York Herald* at Herald Square, 35<sup>th</sup> and Broadway. He walked up to the first official-looking individual he saw and announced that he was looking for any job that the *Herald* had open.

It turned out that the man Sarnoff had approached was not a *Herald* employee, but rather an official of the Commercial Cable Company, a British firm that controlled trans-Atlantic telegraph cables and had rented office space on the ground floor of the *Herald* building. He explained to Sarnoff that he did not work for the *Herald*, but that the cable company was looking for a messenger boy. The salary was five dollars per week with ten cents an hour for overtime. David immediately said, "I'll take it!"

David was assigned a bicycle and began delivering messages. He also was responsible for cleaning the offices at the end of the day. Fascinated by the clacking sound of the telegraph sounders and observing the operators send messages with their keys, David decided he wanted to learn the art of telegraphy. He saved up enough to purchase a telegraph key and taught himself the Morse code. After befriending some of the operators, and building up his code speed with their help, David volunteered to spell them now and then when they needed a break. He quickly demonstrated that he was a competent operator. Unfortunately this job did not last long.

He asked his boss to give him three days off without pay during the Holy Days so he could sing in the synagogue choir. He enjoyed the music and needed the money. His boss emphatically said no, and when David began to argue about it, he was promptly fired. One of his fellow operators recommended that he apply to the American Marconi Company office on William Street in Manhattan. American Marconi was the struggling American subsidiary of the U.K.-based Marconi Company that provided trans-Atlantic message service in competition with the undersea telegraph cable companies, and also ship-to-ship and ship-to-shore communications services.

The only job open was that of office boy at \$5.50 per week, but Sarnoff took it, presuming that it would be a path to becoming an operator when one of those jobs opened up. To work for a company engaged in the exciting new technology of *wireless* telegraphy seemed exhilarating.

When Sarnoff began working for American Marconi in September 1906 the company had fewer than a dozen employees, only four coastal wireless stations in the United States, installations on only four ships, and no profits. One of young David's tasks was to visit friends of American Marconi's chief executive to pick up cash loans on payday so the company could meet its payroll.

Sarnoff was given responsibility for maintaining the company's small technical library. Whenever he had spare time he would read and learn all he could about wireless technology. Proficient in sending and receiving Morse code, if a regular operator was ill, Sarnoff would volunteer to take his place. His bosses soon realized that this young man had a work ethic second to none.

Now and then Guglielmo Marconi himself would visit the New York office. Thrilled to meet the worldwide celebrity, Sarnoff volunteered to be his messenger boy. That sometimes included bringing flowers to women that Marconi was entertaining. Sarnoff appreciated the need for discretion, and Marconi developed trust and rapport with this enthusiastic young employee who was so eager to learn all he could about wireless technology and company business. The two remained friends even after Sarnoff became RCA's leader. Both enjoyed discussing technical details and where the industry was heading.

A few months after his 16<sup>th</sup> birthday, and with Marconi's personal endorsement, Sarnoff was promoted to junior wireless operator (\$7.50 per week—less than \$200 per week in today's dollars). That made it possible for Sarnoff's family to move out of their tenement to a better apartment in Brooklyn's Brownsville neighborhood. Shortly thereafter Sarnoff's father died. In some ways not having to care for this chronically ill man was a burden removed from the family. Marconi became a surrogate father for the young wireless operator.

### **David Sarnoff Moves Up**

Sarnoff took an assignment as wireless operator on the ship *New York*. Crossing the Atlantic with a comfortable cabin of his own, wearing a snazzy Marconi uniform, and hobnobbing with other ship's officers was quite a change from his passage in steerage just seven years earlier. Upon his return he accepted a position as an operator at Marconi's Siasconset station on Nantucket Island. Because of the remote location, his pay was \$70 per month, and Sarnoff felt almost affluent. One reason he was eager for this assignment was that there was nothing to do at the station during off hours except study the books

in the station's technical library. Not having a high school diploma, Sarnoff was determined to become a wireless technical expert and to become the best operator he could.

After eighteen months at Sicaonset, Sarnoff was offered the job of chief operator at the Sea Gate station in New York. That meant he was a supervisor. At age 18 he was the youngest chief operator in Marconi's worldwide operation. He made a point of spending as much time with Marconi as possible whenever the elder was in New York, and it was clear that the two looked forward to seeing each other and talking over the latest developments in wireless technology. Sarnoff also made an effort to understand the business aspects of the growing company. The traffic at his Sea Gate station was increasing dramatically during this period.

A year later Sarnoff heard about an Arctic seal hunting expedition that was seeking an experienced wireless operator for duty aboard the ship *Beothic*. His spirit of adventure cried out and he volunteered for the duty. He kept a diary and had some harrowing experiences that provided fodder for future biographers looking for dramatic anecdotes: narrowly escaping drowning when caught between ice floes, and being credited for saving the life of a sailor on a doctorless ship by sending messages with medical advice from the doctor on board the *Beothic*.

Upon return from this exciting adventure, Sarnoff became the manager of a new Marconi station atop the Wanamaker Department Store in downtown New York. One attraction of this new job: the station kept the same hours as the store, so Sarnoff did not have night shifts. That made it possible for him to enroll in electrical engineering night courses at the Pratt Institute. The Wanamaker store's wireless station attracted popular attention from the general public and press coverage for its young manager. The ambitious Sarnoff developed an appreciation for the value of a positive public image.

In April 1912, during his Wanamaker tenure, the *Titanic* hit an iceberg in the North Atlantic and sank, with major loss of life. Wireless communication allowed the *Titanic's* Marconi Company radio operators to issue a distress call, resulting in the rescue of at least some of the passengers. This incident called attention to the importance of having radio equipment on board passenger ships in case of emergency.

Somehow an oft-repeated but inaccurate narrative arose that Sarnoff was a key figure in the *Titanic* story. Sarnoff's cousin Eugene Lyons was perhaps

the person most responsible for promulgating the myth, but many other articles and history books since then have repeated the story. Bilby's biography sets the record straight. The myth is that Sarnoff selflessly manned the Wanamaker station night and day without sleep, being the most critical person in relaying messages about the sinking and rescuing of passengers. The story said that President Taft ordered other stations to shut down so that David Sarnoff could handle the message traffic without interference. As years went by and the story continued to be embellished, Sarnoff did nothing to debunk it.

Careful research has shown that most wireless traffic associated with the *Titanic* incident was handled by the Marconi station at Cape Race in Newfoundland, not the Wanamaker station. In fact, the Wanamaker store's transmitter was shut down during the incident to minimize interference. It is quite possible that Sarnoff spent considerable time at the Wanamaker station *listening* to the message traffic from Cape Race and other stations, but now it is clear that he was *not* the critical link that the myth made him out to be. The fact that Sarnoff never sought to correct this story makes one wonder whether other stories that made him out to be a hero are exaggerated or even untrue.

Following the *Titanic* tragedy, a number of countries passed legislation requiring passenger ships to install radio equipment and have trained operators on duty. Such laws helped the Marconi Company and its American subsidiary grow the business significantly. Traffic blossomed and stock prices rose. Of course as the technology continued to improve, wireless communication became more reliable.

### **American Marconi Prior to WWI**

By the end of 1912 Sarnoff had been promoted, and now had responsibility for inspection and repair of Marconi-equipped ships docking in New York. In addition, he was an instructor at the Marconi Institute, a radio operator training school. Shortly thereafter he was made American Marconi's assistant chief engineer. His salary had increased to the point where he could afford good quality business suits and smoke expensive cigars. He moved his family to better living quarters in the Bronx.

As American Marconi prospered, its parent company decided it needed a new general manager who was an American citizen. War in Europe began to look increasingly likely, and the U.S. Navy and Congress began raising concerns about the appropriateness of a communications company critical to national security being controlled by a foreign firm in times of turmoil. Naming Edward Nally, an executive with

the Postal Telegraphy Company, to this position was seen as a good public relations move. Nally knew the wired telegraph business well, but understood nothing about wireless technology. Instructor Sarnoff saw an opportunity to build rapport with his new boss. He offered to be Nally's personal mentor regarding wireless. Nally agreed, and soon began to rely on Sarnoff for tutoring and advice. He could not help but be impressed with Sarnoff's enthusiasm, knowledge, and dedication to the company.

While American Marconi's business model was based on wireless telegraphy, in the years just prior to World War I more and more people and companies were experimenting with wireless telephony (voice communication). Around 1910 American inventor Lee de Forest had broadcast the Metropolitan Opera to a handful of listeners in New York City and predicted that someday it might be feasible to bring music into consumers' homes by radio. David Sarnoff followed these developments with keen interest. In 1915 he wrote his bosses a memo essentially proposing entertainment broadcasting to the public. It became known as his "radio music box" proposal. (In recent years a few have questioned whether that story is accurate.) Sarnoff's memo described how the company could make and sell home receivers that consumers could use to enjoy music in their homes and how it might become a lucrative business opportunity. But with war on the horizon and American Marconi's traditional business providing a healthy return on investment, his management had too many other things to think about. Only a few years later when entertainment radio took off, Sarnoff could say "I told you so!"

### **World War I and the U.S. Radio Industry**

During this era radio was considered a critical military technology, particularly by the U.S. Navy. As soon as the United States entered World War I, the Navy took control of all radio stations in the country, including those of American Marconi.

When the United States entered the war, Sarnoff had volunteered to serve in the military, but Admiral Griffen (Chief of the Bureau of Steam Engineering, which was responsible for radio engineering at that time) refused to allow it, arguing that his role in maintaining critical communications readiness for the American Marconi stations operated for the Navy, and producing radio equipment ordered by the Navy was more important than anything he might contribute in a uniform. During the war Sarnoff often travelled to and from Washington, D.C. for meetings with military officials. He got to know key people in government and Congress, and that served him well later when he ran RCA.

Technical progress was especially rapid during the war. One particularly important development was that the high-power spark transmitters that had been used before the war were rapidly being replaced with a new and better technology for long-distance radio communication—the alternator (a rotating motor-generator device that generates a radio signal). General Electric engineer Ernst Alexanderson had developed the first small alternators for radio transmission a decade earlier for radio telephony pioneer Reginal Fessenden. In the intervening years GE had been able to scale them up to much higher power so as to allow reliable trans-Atlantic communication. The Navy was increasingly relying on them for long-distance messaging. When the war ended, the Marconi Company wanted to upgrade its transmitter stations with high-power alternators and was beginning negotiations with GE in the hope of winning exclusive world-wide rights to GE's alternator technology.

The Navy had relished having complete control of radio during the period 1917-20 and tried to convince Congress to continue that policy following the war. But, influential members of Congress insisted that in peacetime radio should be under civilian jurisdiction, and the Navy had to abandon its quest. Smarting from this loss, the Navy continued to argue that it would be wrong to allow trans-Atlantic communication to be dominated by British-owned American Marconi, even though Britain was an ally. The Navy also balked at giving a foreign company exclusive rights to what was then seen as the best transmitter technology. Preferring to have a U.S. company managing long-distance radio communication, Navy officials went to General Electric and urged it to form a new U.S. company for this purpose—a company that would take over American Marconi. Members of Congress liked this approach as well.

GE's management was receptive. But why would Marconi be willing to give up its successful American subsidiary? The war had benefited American Marconi. In 1917 it did more than \$5 million in business (about \$100 million in today's dollars), an impressive sum at the time. One reason that Marconi was willing to entertain GE's proposal was that the parent company could see the handwriting on the wall—that the American government would never be content with the status quo. Secondly, at the time Marconi's finances were such that a major influx of cash could be put to good use. So, Marconi decided to negotiate its sale to the proposed new company to be called the Radio Corporation of America (RCA).

RCA was created with the blessing of the Congress and the Navy (Admiral W. H. G. Bullard was to serve on RCA's board). While it did not have an official government charter, RCA was initially envisioned as a quasi-government corporation to provide exclusive long-distance communication to serve national interests. No one at the time imagined that before long it would evolve into a consumer electronics firm. It was not very many years later that RCA began to be criticized by Congress and the public for monopolistic practices in spite of the circumstances into which it was born.

RCA was officially incorporated on October 17, 1919. It took over all of American Marconi's staff, stations, and facilities. American Marconi's Edward Nally became RCA's first president. GE Vice President Owen Young, who was the key official in creating RCA, became its first board chair. David Sarnoff was named Commercial Manager, a title that implied a role in day-to-day corporate operations. But he was only one manager among many. It was not yet "his company."

Prior to WWI, patent wars had been raging in the radio industry. It was difficult for any company to build a state-of-the-art radio because key patents were often owned by competitors that might be reluctant to license to others. During the war the Navy had told all the radio manufacturers supplying it with equipment to build the best possible radio gear without worrying about patent infringement, assuring them that intellectual property disputes would be settled by the Navy. Consequently, progress was rapid. The thinking was that because RCA had been formed with the blessing of the government, it would stand a better chance of being able to assemble a comprehensive patent portfolio that would allow it to take advantage of the best technical approaches. As David Sarnoff had predicted, patent royalties ultimately became a dependable source of income for RCA.

A wide and deep patent pool was critical to success in a highly technical business like RCA's. While GE owned many important radio patents to which RCA had access, other key patents were owned by AT&T, Westinghouse, and Wireless Specialty Apparatus, a small radio equipment producer owned by United Fruit. RCA set out to work with these three companies to arrange patent sharing arrangements. The success of that effort meant that RCA was able to manufacture state-of-the-art radio gear. This cooperative arrangement eventually was called "The Radio Trust." Those who considered themselves trust-busters became increasingly suspicious that RCA was not a good thing for the nation.

## Sarnoff's Role in the New RCA

Sarnoff and Young had a good relationship, and Sarnoff eventually managed to convince Young that RCA needed to expand its horizon and move into consumer electronics. Within a year of RCA's creation, entertainment broadcasting had begun. (Pittsburgh's pioneer station KDKA was launched in November 1920.) Radio aficionados around the country were eager to purchase radios to receive such broadcasts. Demand for receiving equipment and parts was ballooning. Sarnoff, of course, remembered his radio music box proposal of a few years prior and was eager to see RCA respond to this growing trend. But he had to convince his fellow managers that this was a business opportunity that should be pursued. There were some in the company who were adamant that RCA should concentrate on its core business of long-distance message traffic and not be distracted by what might be a passing fad.

In its early years RCA manufactured very little radio equipment. While it had inherited a small American Marconi factory in New Jersey that turned out a few specialty receivers, once RCA got into the consumer electronics business it had no choice but to rely on its partners GE and Westinghouse and their large factories to mass produce its radios. Prior to their agreements with RCA, both GE and Westinghouse had produced a few radios under their own brand names, but soon arrangements were worked out to have them make "Radiolas" to be sold by RCA. By the early 1920s it was clear that in addition to overseas wireless, RCA would become a player in the consumer electronics marketplace.

Once RCA began to market home radios, Sarnoff felt that it needed to protect its intellectual property aggressively. When it began to sue companies for patent infringement, RCA's competitors banded together to fight back. Eugene McDonald, Zenith's head, formed a group called the Independent Radio Manufacturers (IRM), and the IRM began a public relations campaign to portray RCA as an evil anti-competitive monopoly. It said RCA's patent pool existed "to intimidate the trade and make the evasion of anti-trust laws possible." Westinghouse, GE, and AT&T began expanding into the burgeoning broadcasting market by creating new radio stations, and so broadcasters also began to worry that the Radio Group might try to put *them* out of business. A company that had been formed at the urging of the government just a couple of years earlier and encouraged to be a monopoly for what it did, suddenly faced growing negative public opinion highly critical of any corporate strategy that smacked of monopoly. RCA was changing rapidly as the consumer electronics business soon sur-

passed the original thrust of providing overseas messaging services.

Young concluded that Nally was not prepared to deal with the public relations challenges, and so in January 1923 he brought in a new RCA president, War Department official James Harbord. Sarnoff got a new title of vice president, but was disappointed that Young thought him too young for the top job. Like Nally, Harbord relied on Sarnoff for technical advice and allowed him to operate without micromanagement.

By the mid-1920s radio engineers agreed that the superheterodyne type of circuit was the best design for most radios. (It is still used today.) RCA had purchased the rights to the superheterodyne patent and was unwilling to license it to competitors. RCA also held key patents on vacuum tube technology. Sarnoff found it increasingly difficult to defend RCA's strangle hold on key patents. He argued that RCA had acquired its patents fair and square; hence it was unreasonable to demand that it allow competitors access to them. The Federal Trade Commission began to raise issues about RCA's potential for monopoly, and in 1923 told Congress that "the pooling of all patents pertaining to vacuum tubes has resulted in giving the Radio Corporation and its affiliated companies a monopoly in the manufacture and sale of receiving sets and use thereof." Arguably, monopoly charges were then not really fair because during most of the 1920s RCA was *not* the largest seller of radio sets. It had many competitors.

RCA eventually worked out a package deal for its competitors to license a group of popular patents. Initially it set a royalty payment of 7.5 percent for each radio sold that used any or all of the included patents. Many independent radio companies agreed to the offer. During the Depression era, income from patent royalties was an important contributor to RCA staying in the black.

Relying on GE and Westinghouse to manufacture radios created a bottleneck for RCA. The meetings required to come to agreement on engineering and marketing details took up time and meant that RCA could not respond to rapid changes as quickly as its competitors. Sarnoff realized that to maximize its corporate success RCA needed to acquire its own manufacturing capability. He also believed that RCA needed to be vertically integrated—producing vacuum tubes, parts, receivers, transmitters, microphones, and other apparatus. It needed a research laboratory to stay on top of rapidly changing technology. As Sarnoff built RCA into the great corpor-



David Sarnoff, circa 1922. (Photo credit: Wikipedia.)

ation that it eventually became, this vision guided him.

During the early 1920s experiments had taken place whereby two or more radio stations were connected by leased telephone lines, airing the same program in more than one area. As early as 1922 Sarnoff had proposed the idea that RCA establish a national broadcasting chain of interconnected radio stations. But first, corporate radio (RCA) and corporate telephone (AT&T) would have to confront and resolve major disagreements.

By the mid-1920s AT&T and RCA were so at odds over an increasing number of intractable disputes that they agreed to submit them to arbitration. The arbitrator's report criticized the phone company's role in the Radio Group, suggesting that the arrangement might even violate anti-trust laws. Of course the Radio Group's competitors had been alleging that very thing. AT&T's role in radio to date (primarily building and selling transmitters and operating stations WEAJ in New York and WCAP in Washington) represented a small portion of its business compared to its traditional telephone service. Ever careful to avoid charges that it was a monopoly, the Bell System sought to keep the arbitrator's report from becoming public and jeopardizing its core telephone business.

As AT&T's management began questioning whether it made sense to continue the company's role in broadcasting, Sarnoff saw his opportunity for RCA and a chance to create the national radio network he had envisioned. He is credited with leading the successful behind-the-scenes negotiations that resulted in AT&T relinquishing its interest in radio broadcasting. In February 1925 he made a formal proposal to "put all stations of all parties [the Radio Group and the phone company] into a broadcasting company which can be made self-supporting and probably revenue producing, the telephone company to furnish wires as needed." The phone company's flagship station WEAf was sold to the Radio Group for \$1 million. RCA agreed that the new broadcasting company would lease special phone lines from AT&T that guaranteed the phone company at least \$1 million annually.

The new National Broadcasting Company was to be owned 50 percent by RCA, 30 percent by GE, and 20 percent by Westinghouse. It actually consisted of two networks—the "Red" network and the "Blue" network. (Those names supposedly came from the colored pencils used to show the interconnections on a map.) NBC was launched in November 1926 and soon became a lucrative part of RCA's business. David and his wife Lizette rode to the inaugural broadcast at the Waldorf Astoria Hotel in a limousine, no doubt enjoying the victory lap. Sarnoff had actually created the national radio network that he had proposed years earlier.

Sarnoff's salary was now \$60,000 per year (\$870,000 today). In 1927 he was named an RCA board member. When Harbord took a leave of absence in the summer of 1928, thirty-seven year-old Sarnoff was named RCA's acting president. Later that year Sarnoff was named executive vice president and his salary increased to \$80,000 per year.

### **Roaring, Crashing, and Rebounding in the 1920s**

As silent movies gave way to "talkies," RCA got into the movie equipment business by using sound film technology developed by GE. RCA's Photophone sound movie system competed with AT&T/Western Electric's Vitaphone System. Around 1928 Sarnoff was introduced to Boston entrepreneur Joseph P. Kennedy, the father of the future U.S. president. Kennedy owned a struggling movie company as well as an interest in the Keith-Albee-Orpheum vaudeville theater chain. The two men hit it off and agreed to use RCA funding to create a new movie company—RKO (Radio-Keith-Orpheum) Pictures. RKO would use the RCA Photophone system in the chain of vaudeville theaters that were to be converted to sound movie palaces. In the

coming years Photophone and Vitaphone each captured about half of the movie theater market.

As the 1920s wound down, General Motors began to encourage its customers to consider radios in its vehicles. Sarnoff saw another opportunity. It was not long before he had negotiated a deal with General Motors to form the General Motors Radio Corporation, owned 51 percent by GM and 49 percent by RCA. Sarnoff served on the new company's board. Licensing revenues from this venture flowed into RCA's coffers.

RCA stock soared during the 1920s. It was a bright blue stock among the blue chips. That success gave Sarnoff confidence that it was time to consider another bold move. He saw opportunities for combination radio-phonographs and major advantages for RCA were it to merge with a phonograph maker. The Victor Talking Machine Company, maker of "Victrolas" and a leader in the phonograph industry, had a huge factory in Camden, New Jersey. Sarnoff realized that if RCA purchased Victor, it could manufacture its own radios, and not have to depend on GE and Westinghouse factories.

Sarnoff was the key individual in making it happen. The RCA Victor Company was incorporated in 1929, owned 50 percent by RCA, 30 percent by GE, and 20 percent by Westinghouse. Sarnoff would be the board chair of the new company. The agreement was that radio production by GE and Westinghouse would be phased out as radio manufacturing in the RCA Victor plant ramped up.

An unexpected development about the same time, helped Sarnoff free RCA from dependence on Westinghouse and GE. After years of complaints by independent radio manufacturers that RCA was a monopoly, in May 1930, a U.S. Marshal handed Sarnoff a transmittal from the Department of Justice saying that the cross-licensing arrangements upon which RCA had been founded were in violation of anti-trust laws. This came as a complete surprise. RCA's managers thought they had excellent rapport with the Hoover Administration, one that would never do anything to harm the company. Sarnoff initially geared up to fight the accusations, but then quickly realized that perhaps this was not a problem but rather a golden opportunity for RCA to become even more independent of its partners in the Radio Group. Instead of fighting the charges, RCA might be better off to tell the government, "We are so sorry and we will agree to fix it."

Sarnoff offered to buy back control from the others in the Radio Group. GE and Westinghouse, tired of attacks from trust busters, were both inclined to



focus on their core electrical businesses. They agreed to sell their 30 percent and 20 percent interests in NBC and RCA Victor respectively, to RCA. Sarnoff's control over RCA further tightened. Now he could make decisions without having to consult with GE and Westinghouse.

The agreement that finally resulted was complicated. A key provision was that GE and Westinghouse would agree not to compete with RCA in radio for two and a half years. After that time they could make radios and license RCA's patents like anyone else. All GE and Westinghouse people would resign from RCA's board. Owen Young had to resign as board chair to keep his job at GE. This satisfied the government's call for total separation. All parties avoided what could have been a long and grueling trial. The out-of-court settlement was portrayed by the press as an anti-trust victory for the government. Sarnoff viewed it as a victory for him because now he had complete control of RCA, free of any influence from GE and Westinghouse. As he replaced the board members who had left he chose ones that he felt confident would not challenge his authority.

Just prior to the start of the Depression, RCA had about 22,000 employees and had been growing by leaps and bounds. While RCA still offered overseas message services, that aspect of the business for which the company had been founded a decade earlier was, by 1929 but a minor element in RCA's portfolio.

When the stock market crashed, RCA's stock price dropped precipitously, as did most. Perhaps fearing that the Roaring '20s bubble might burst, Sarnoff had sold all his RCA stock in June of 1929, so the crash had little effect on his personal finances. In January 1930 David Sarnoff became RCA's third president. Harbord, now RCA's board chairman, let Sarnoff do more or less whatever he wanted, so it was fair to say that by 1930 Sarnoff had complete control of the Radio Corporation of America.

### Sarnoff and Television

During the late 1920s a number of companies, including GE and RCA, experimented with scanning disc television. David Sarnoff followed these developments with interest. He was convinced that someday television could represent an important part of RCA's business. But Sarnoff felt that the mechanical scanning disc TV that most companies were pursuing



RCA Board Chair Harbord (left) congratulates David Sarnoff upon his being named RCA President.

was inelegant and the wrong approach. Independent inventor Philo Farnsworth was developing all-electronic television, and RCA eventually had to purchase the rights to use some of his patents.

When Vladimir Zworykin met with Sarnoff in 1929, it was a turning point in the history of television development. A fellow Russian emigre, Zworykin had been working in Westinghouse's research laboratory on an all-electronic version of television. He had demonstrated the feasibility of using an electronic pickup camera tube to capture images, and CRTs (picture tubes) to display the images. But Westinghouse management was disinclined to devote attention or any significant development fund-

ing to television research. Sarnoff immediately saw that Zworykin's approach was vastly superior to scanning disc TV. Sarnoff agreed to fund Zworykin, and as soon as the newly-acquired RCA Victor facility in Camden was ready to accommodate his team, Zworykin moved there to head RCA's electronic TV research effort.

Zworykin grossly underestimated the cost of developing a practical electronic television system. He originally posited \$100,000. Years later the actual number proved to be 500 times that. Undeterred by the steadily rising cost, Sarnoff was determined to support this effort until it achieved success. He often travelled to Camden to visit Zworykin's laboratory, get updated on progress, and push the researchers to work harder. Throughout the 1930s RCA's board questioned the huge amounts of money being plowed into TV research with no return on investment. But Sarnoff reassuringly insisted that someday television would be a hugely profitable business for RCA, which of course would turn out to be true.

To carry out real-world tests of television reception, RCA installed a TV transmitter atop the Empire State Building, and by the late 1930s, installed prototype receivers in company executives' homes. The system worked. One challenge was to get an industry consensus on standards, such as the number of lines in the picture and the frame rate. RCA had definite ideas about standards but competitors such as Zenith, DuMont, and Philco did not necessarily agree. The Federal Communications Commission hoped that an industry consensus would emerge before it had to lock in standards. That proved difficult. Philco and others wanted the

public to believe that RCA was a bully, trying to force its standards on the industry, and that it would be a mistake if FCC prematurely agreed to RCA's proposal.

In April 1939 at the World's Fair in New York, RCA/NBC inaugurated regular television broadcasting—on an experimental basis, without commercials. Because selling commercials had been so successful in American radio, everyone assumed that the same business model would apply to television. But until standards were officially adopted, no TV broadcaster could sell commercials. Competitors charged that RCA was jumping the gun by selling receivers to a gullible public—sets that might prove to be obsolete when final standards were adopted. James Fly, the FCC Chair, tended to be among the anti-RCA forces, and was highly critical of RCA for rushing into the market. Television sets were frightfully expensive and consumers were, in fact, worried about claims of potential obsolescence. Consequently, very few television sets were sold in 1939 and 1940. (The Museum has on exhibit a rare RCA Victor 1940 TV set.) DuMont was also marketing TV sets that could receive the NBC TV broadcasts, but most major radio companies were taking a wait and see attitude.

Eager to see television take off, Sarnoff found that more and more of his time had to be devoted to TV-related issues. His salary had been raised to \$100,000 per year (nearly \$2 million today). Congress and the press tended to turn to Sarnoff when questions came up about the future of television. While his competitors were no doubt annoyed, Sarnoff became the de facto public spokesperson for the entire television industry.

RCA realized that it dare not be a monopoly in television, and so it offered to license its key patents to competitors. A National Television Standards Committee had been formed to grapple with the standards issues. It recommended a 525-line picture with 30 frames per second—very close to what RCA had proposed (441 lines). Once standards were officially adopted, the FCC allowed stations to have commercials. NBC's first telecast with commercials was on July 1, 1941. Technicians were able to modify the few RCA sets that had been sold to accommodate the new official standard.

In 1941 Sarnoff fulfilled another dream when he dedicated the new RCA Research Laboratory in Princeton, N.J. During the years it existed it was considered one of the top industrial research laboratories in the United States.

## World War II

Then suddenly the country was swept into World War II. Within days after Pearl Harbor, America's electronics companies, including RCA, switched from making civilian radio equipment to producing military electronic gear, turning out war materiel in staggering quantities. Work on television had to go on the back burner.

David Sarnoff was a patriotic American who wanted to serve his country. In 1924 Sarnoff had asked for and received a commission in the Army Signal Corps Reserve. He became a lieutenant colonel and spent a couple of weeks most years at Fort Monmouth, New Jersey, a major Army center for electronics work. Prior to the start of WWII he had been promoted to full colonel, and now he was assigned a number of important Signal Corps tasks in addition to his executive responsibilities at RCA converting the company to defense work.

Sarnoff was dispatched to Europe to work with General Eisenhower to set up a radio broadcasting station to reach all Allied forces. It had to be ready by D-Day. Also, Sarnoff was responsible for creating the entire communications infrastructure for the Allied forces. When tension developed between the Americans and the BBC about allocation of resources, Sarnoff went right to the top, meeting with Winston Churchill to sort it out.

On December 7, 1944 Sarnoff received a promotion to brigadier general. He loved the title, which was a tremendous boost to his already large ego. Forever after Sarnoff let it be known to everyone that he wanted to be referred to as General Sarnoff. (RCA employees ignored that command at their peril.) After the war Sarnoff had a tendency to seek out former military officers to serve as RCA board members. After the war, RCA's defense electronics business prospered.



General David Sarnoff.

## Quest for Recognition

In the 1950s Sarnoff served on multiple military commissions and public service committees.

His goal seemed to be acquiring the longest resume possible. He loved publicity and welcomed honorary degrees and titles. As examples, he chaired the Citizen's Advisory Commission on Manpower Utilization in the Armed Services, served on the Rockefeller Committee on Department of Defense Organization, and even Chaired the National Red Cross Fund Drive one year. Self-promotion was second nature to him. Sarnoff launched a campaign to become a two-star general in the Signal Corps Reserve. He contacted every high level government person he knew. Nothing seemed to work. Finally he wrote to President Eisenhower, whom he considered a friend. But Ike explained that he could not intervene to change Army promotion criteria.

Sarnoff next sought the Distinguished Service Medal. After again using every contact he had in high places, that too failed. But his friends did arrange to get him the Decoration for Exceptional Civilian Service, a sort of consolation prize.

Then Sarnoff went after the Medal of Freedom. He had worked to gain favor with Lyndon Johnson. RCA gave sweet deals on equipment to Johnson's broadcasting stations and advertised heavily on them. Sarnoff installed an RCA radar system in Johnson's private jet. For whatever reason, Johnson did not secure this medal for Sarnoff. Among the hundreds of awards that David Sarnoff did receive, he particularly treasured a special achievement award presented by seventeen U.S. senators. Over his lifetime he received 27 honorary degrees. Modesty was not one of Sarnoff's characteristics.

## Color Television

Perhaps Sarnoff's proudest technical accomplishment during his tenure at RCA was bringing color television to the nation. Laboratories had been experimenting with color even back in the days of mechanical scanning disc TV. But after WWII the race to perfect color TV heated up.

The Columbia Broadcasting System was NBC's chief network radio competitor in the 1940s. CBS had nowhere near the depth and breadth of technical prowess that RCA did. In 1936 CBS had hired Peter Goldmark into its small research department, and Goldmark had an idea for a color television system. Unfortunately, the system Goldmark convinced CBS to back proved to be flawed. He proposed to use a mechanical system somewhat akin to scanning disc television. It employed a disc with three color filters (green, red, blue) spinning in front of a black and white TV set that would display sequential frames created with similar color filters at the camera.

Sarnoff had rejected that approach. For one thing, the whirring disc had to be considerably larger than the picture tube. For a small CRT that might be tolerable, but to achieve a large picture, the high speed whirring disc would need to be huge. That seemed like a bad idea. Furthermore, the transmitted signal would be incompatible with all the black and white sets already in consumer's living rooms. RCA was working on a compatible system in which color broadcasts could be viewed in black and white on existing sets. Sarnoff was so convinced that the RCA approach was better that he did not take seriously the CBS competition. Even back in 1940 when the industry and the FCC were struggling to agree on standards for black and white television, Goldmark had demonstrated a color TV. The pictures looked surprising good—better than the early color prototypes that RCA could demonstrate at the time. The FCC was not ready to make a decision regarding color. And then the war came along and both RCA and CBS turned their attention to military needs.

Getting RCA's compatible color system to work well involved some exceeding difficult technical challenges. Following the war, CBS reasoned that it should try to convince the FCC to approve its color system before RCA could perfect its intrinsically better approach. In September 1950 the FCC decided to hold a public demonstration with a side-by-side comparison of the two competing systems. There was no doubt that the CBS color image was better than that of RCA. In 1951 the FCC approved the CBS system by a 5 to 3 vote.

Sarnoff refused to give up. He told his research team at Princeton to work night and day to get the RCA color system working right. His strategy was to sell as many black and white sets as possible to grow the base of consumers who would not want their sets made obsolete. RCA mounted an aggressive public relations campaign to convince the public that the FCC had made a terrible decision that needed to be overturned. Its advertising urged customers to wait, because a much better color set would soon be available. Sarnoff filed a lawsuit "to enjoin, set aside, annul and suspend" the FCC order because the consensus of technical experts in the industry was that the CBS system was flawed, and would make obsolete the huge number of television sets already in American homes.

Other set manufacturers decided to wait out the controversy, choosing not to make color TVs or adapters for the CBS system but they continued to make and sell black and white sets. That helped RCA. The general public was confused and did not

know whom to believe, so they did not rush to purchase CBS-Columbia color TV sets.

As RCA's research efforts began to pay off, the company scheduled public demonstrations to show that its system could produce color pictures as good or better than those of CBS. These demonstrations also proved that when a color program was viewed on a black and white set, the picture quality was excellent. When CBS began broadcasting color, no one could view it except with a CBS set, and that began to reinforce RCA's argument in the minds of the public.

In October 1951 the Korean War threw a monkey wrench into CBS's effort to ramp up color TV production. Restrictions on specialty materials deemed essential to the war effort made it difficult to produce color TV sets. So CBS's push to color ground to a halt after only a small number had been sold. But RCA and other companies continued to produce and promote black and white TVs.

As the Korean War wound down, CBS management began to have second thoughts about color TV. CBS did not have the big existing factories that RCA and other companies did, and so gearing up to produce large quantities of color TVs would mean an expensive capital investment. Did the company really want to risk a major commitment of funds? Recent demonstrations by RCA convinced CBS that its competitor actually did have a better system to offer consumers.

The FCC needed a way to save face if it were to overturn its earlier bet on the CBS system. So, it called back the National Television Standards Committee to reconsider the color standards issue. RCA was well represented on the committee. Even though its competitors such as Philco and Zenith had no love for RCA, their engineers by then admitted that RCA really did have a technically superior system. By spring 1953 CBS had decided it had bet on the wrong horse. In a House committee hearing CBS announced that it had concluded that it would be unwise to launch color broadcasting with broadcasts that could not be received by the increasingly large base of existing sets. The FCC then was forced to reconsider color standards and the NTSC recommended the compatible RCA system. On December 17, 1953 it voted for the NTSC standards. RCA had won the battle. Another victory for David Sarnoff!

RCA introduced its first mass-produced color set, Model CT-100, in 1954 (one of which is on exhibit at the Museum). It was originally priced at about

\$1000—much more than most families could afford. Moreover, most TV shows were still being broadcast in black and white. So, at first color sets were slow to sell and RCA's sales estimates proved much too optimistic. The year 1960 was the first that RCA reported profits from the sale of color TV sets. It was not until the mid-1960s when most broadcasting, including local programming was switching to color, and when the prices of color sets began to drop, that sales of color sets began to climb. Popular programs such as Disney's "Wonderful World of Color" and special events such as the Rose Parade motivated consumers to buy color sets. When NBC's peacock spread its wings at the beginning each color broadcast, consumers still watching black and white sets were reminded that they should upgrade. By 1965 twenty companies were offering color TV sets and prices were dropping.

In 1957 Philco filed an anti-trust suit against RCA, charging that RCA was trying to put competitors out of business by selling color TV sets for unreasonably low prices. Sarnoff wanted to fight, but was convinced by his lawyers that the best course of action was to settle the suit by abandoning the patent licensing approach that RCA had been using since the days of the Radio Group. RCA also settled a federal lawsuit by placing its most important color TV patents in a separate pool and allowing any competitor to use them royalty free. A number of other lawsuits by competitors during the early years of color TV also had to be settled, which cost RCA non-trivial amounts of money as well as wounding Sarnoff's pride.

Once color TV caught on with consumers, Sarnoff was concerned that history give adequate credit to RCA and to him. RCA ran a major ad campaign to ensure that everyone knew that RCA was the leader in color. Competitors such as Philco and Zenith chafed at this assertion even though it was arguably true. Initially, other manufacturers were less eager to push color than RCA because color sets were difficult to build and tended to require more expensive warranty service. But eventually black and white TV became passé and nearly all sets sold were color.

During the 1960s and 70s RCA made huge amounts of money with color TV, not only selling the sets themselves, but also color TV cameras, studio equipment, and commercials on NBC shows broadcast in color. From 1960-65 RCA's profits grew at triple the average rate of other manufacturing companies. There is no question that RCA

led the industry in promoting color. David Sarnoff was its principal cheerleader.

### Sarnoff's Last Years

Sarnoff was offered a chance to continue as board chairman until he was 75, with a salary of \$200,000 per year. He did not need to worry about job security.

During his senior citizen years Sarnoff was often sought after for speeches, interviews, and magazine articles. People wanted to know how he had achieved such success for RCA and what his management style was. He often cited "hard work and discipline." He had been described by certain critics as "relentless, intimidating, hard-headed, and demanding." He expected his underlings to work long hours, but he set a good example by doing so himself until he retired. He kept a clean desk and insisted that memos to him be limited to one page.

Not everything RCA did in the postwar years was a success. RCA did sell some electronic products overseas, but the company did not aggressively market consumer electronics world-wide, and that likely was a mistake. Japanese firms like Sony filled the global market void elsewhere and then took over the U.S. market. Japanese firms initially paid royalties for RCA's patents but eventually won patents of their own and learned to manufacture quality products for less than RCA could.

RCA entered the mainframe computer business, but could not compete with IBM. It gave up in September 1971, necessitating a huge write-off. RCA made transistors and transistor radios, but it did not become the powerhouse leader in solid state electronics that it had once enjoyed in vacuum tubes. RCA made scientific instruments such as electron microscopes, and lots of test equipment, although those businesses never became major profit centers. RCA achieved some success in military electronics and satellite communication.

In the 1950s 78-rpm records were on the way out. RCA had developed the 45-rpm record that worked well for pop tunes and juke boxes, but CBS's 33½-rpm long-play records were much better for symphonies and operas. Both formats had their place. RCA soon had to produce LP albums to keep up with the competition. RCA tried 8-track tapes, but that



David Sarnoff's 75th birthday party at the 21 Club.

product line was short-lived. Its videodisc system called Selecta-Vision also petered out.

David Sarnoff turned 76 in 1967 and that was his last year with RCA. He had been the public face of RCA for nearly four decades. He soon began to experience serious health problems. For the last three plus years of his life he was bed-ridden at home, gradually losing speech, sight, and hearing. He died on December 12, 1971.

Sarnoff had been grooming his son Robert to take over the company. Robert became RCA's president on January 1, 1965. The correlation with the beginning of RCA's downhill slide is strong. Asian brands such as

Sony and Panasonic were quick to look for places where RCA might falter, and before long, they found them, and offered quality products to American consumers at reasonable prices. Robert Sarnoff was trained as a lawyer, did not know electronics, and did not possess the vision that his father had. Rather than focus on electronics, which RCA did extremely well, RCA began to diversify into totally unrelated businesses. In the 1970s RCA purchased companies such as Hertz Rent-A-Car, Banquet Frozen Foods, and Gibson Greeting Cards. Managing such an eclectic mix of businesses made focusing difficult.

RCA continued in electronics for two more decades, but in the years after David Sarnoff died, its businesses fell by the wayside one by one. As the company faltered under Robert's leadership, he was forced out in 1975. In 1985, General Electric, the company that founded RCA, purchased it and began to sell off components. In 1988 RCA's consumer electronics business was sold to Thomson, a French company. NBC eventually went to Comcast. The David Sarnoff Research Center in Princeton ended up with SRI International.

Sadly, the great world-class RCA electronics empire that David Sarnoff had built is no more.

### Parting Thoughts

#### David Sarnoff's Positives:

- He envisioned the future (e.g., home radios, networks, color TV, satellite communication).
- He took a long range view (e.g., funded television research for more than a decade with

no return on investment). Next quarter profits were less important than building a solid company for the future.

- He built RCA into one of the world's outstanding vertically integrated electronics companies.
- He recognized that to be successful RCA needed to fund world-class research.
- He ensured that RCA provided excellent training and service literature for repair shops.
- He was patriotic and strived to serve his country.

#### David Sarnoff's Negatives:

- He could be ruthless and demanded loyalty.
- His lack of modesty knew no bounds; his quest for recognition was shameful.
- He did not prepare RCA well for dealing with Asian competition.
- He was unsuccessful in taking RCA into the mainframe computer business.
- He was guilty of nepotism, grooming his son Robert to take over RCA when Robert was not up to the job.

Could RCA have competed successfully with Japanese electronics companies if David Sarnoff had still been in charge? It would have been a challenge. We will never know. At its peak, RCA was a truly great company, an asset to the United States economy. David Sarnoff deserves credit for making it so.

#### **Sources**

Albert Abramson, *Zworykin: Pioneer of Television*, (Urbana, IL: University of Illinois Press, 1995).

Brian Belanger, "RCA's Patent Strategy," *Radio Age*, Dec. 1999, p.1

Kenneth Bilby, *The General: David Sarnoff and the Rise of the Communications Industry* (New York: Harper and Row, 1986).

Ed Lyon, "Birth of the Radio Group," Series of articles in *Radio Age*, March 1985 to April 1987.

Eugene Lyons, *David Sarnoff* (New York: Harper and Row, 1966).

David Sarnoff, *Looking Ahead: The Papers of David Sarnoff*, (New York: McGraw-Hill, 1968).

David Sarnoff, *Pioneering in Television*, (New York: RCA [no date]).

Eric Wenass, *Radiola: The Golden Age of RCA*, (Chandler, AZ: Sonoran Publishing, 2007).

**Photo credits:** Hagley Museum digital archives, unless otherwise noted. ■



David Sarnoff (left) and his son, Robert.

## Greetings, NCRTV Family

*From Sherise Malachi, Executive Director*

I hope you are having a wonderful summer. This year is flying by! I wanted to update you with some exciting news. First, after a very lengthy process, our Annex Building (right behind our museum) has been approved by the county for an occupancy permit. That means that we have been approved to host programs and classes in relation to broadcasting, past, present and future.

We are currently working with the City Of Bowie to enhance the interior and exterior of the building, while that part is being reviewed, we are excited to announce that we are relaunching our Radio Repair Classes, which will begin in September. We will offer two ten-week courses, one held on Monday evenings and the other on Saturday mornings. If you are interested in joining either class, please email us at [info@ncrtv.org](mailto:info@ncrtv.org).

Save the date: March 21, 2020, for our 5th Gala to be held in Bowie. We are so excited about this milestone celebration, and we hope you will join us. Further details will be sent to you in the fall.

Thank you for your support of our museum. We look forward to seeing each of you soon. ■

# Nick Williams: CRT Restorer

## By Brian Belanger

At the Early Television Convention in Hilliard, Ohio, this May, I met fellow Marylander Nick Williams. Nick is embarking on an important project that will greatly benefit those of us striving to preserve the history of television. I invited Nick to visit the Museum after he returned from Ohio and asked him to allow me to interview him so I could share his interesting story.

Like many of us, Nick became fascinated by electronics at an early age. When he was in 9<sup>th</sup> grade he began taking apart discarded electronic gear. He especially liked vacuum tube amplifiers. Eager to learn, he checked out every electronic book in his public library.

He decided to join the Navy immediately after high school, in fact, he left for boot camp even before his graduation ceremony! Once in the Navy, his keen interest in electronics served him well, as he has devoted his entire Navy career to aviation electronics. (Nick plans to retire in 2020.)

In addition to his interest in audio amps, Nick decided to teach himself about television. His first restoration project was a 16-inch Philco set. Having achieved success with a black and white set, Nick decided to try color. He purchased an RCA CTC-4 and successfully restored it, after some difficulty locating a good CRT (cathode ray “picture” tube).

Nick began regularly attending the annual conventions at the Early Television Museum in Ohio, and got to know its director, Steve McVoy well. One of the challenges of restoring early television sets is finding good picture tubes. Years ago there were a number of companies that specialized in rebuilding CRTs, but when the world switched to flat panel displays, the demand for CRT rebuilding disappeared, and rebuilding companies fell by the wayside. The Early Television Museum decided that it was important to preserve this knowhow, and to ensure that somewhere picture tubes could be rebuilt to keep the old sets working. The Museum arranged to obtain all the equipment from one of the companies going out of business. That equipment has now been moved to Ohio and installed in a new workshop area at the Museum. McVoy is looking for people interesting in learning this skill.

Nick had been following this effort with great interest. He told me, “I would love to be able to



Nick Williams at the Museum, in front of the RCA CT-100 color set.

work at the Ohio museum to learn the skills necessary to rebuild CRTs, but it is such a long way from Maryland.”

Through a friend, he heard of a rebuilding company in France that was still in business, but was about to shut down. This company had lasted longer than most because it had a long-standing contract with the French National Railways to service the CRT monitors used in railroad stations. As those monitors were fast being replaced with flat panels, the company foresaw no future. The company’s management had let it be known that it would welcome finding a younger person interested in learning the necessary skills.

Nick made arrangements to fly to France. He spent two weeks learning all he could. It was awkward because his French hosts spoke no English and he spoke no French, but since much of the learning involved watching to see exactly how they did the various tasks, Nick was able to come home with much practical knowledge. He had anticipated travelling to the Ohio museum from time to time to engage in their rebuilding work.

Back in the United States, Nick happened to see an eBay offering for a horizontal lathe of the type used in CRT rebuilding. The seller was a California company—Quest International—that specialized in medical CRTs. Curious to know more, Nick contacted that company and found that they were selling *all* of the equipment necessary to rebuild

CRTs. Since there was not much demand these days for such equipment, they offered to sell him the whole laboratory for a reasonable price. Nick suddenly saw an opportunity to have his own CRT rebuilding facility at his home. He would not have to travel to Ohio to rebuild picture tubes! It was too interesting an opportunity to pass up.

It cost Nick more to ship all this heavy equipment from California to his home in Maryland than it did to purchase it. But now it is all safely in Nick's garage waiting to be set up and checked out.

Nick's intent upon retirement from the Navy is to make this his post-retirement hobby/business. "I certainly don't expect to get rich doing this," said Nick "but I hope I can do a little better than breaking even. My main hope is that people like me who enjoy restoring old TV sets will have an easier time finding CRTs once my facility is up and running."

Nick is setting up a website for his customers. He points out that not all CRTs can be rebuilt. He does not want potential customers just shipping CRTs to him. Instead, people will need to contact him with the tube type, its condition, etc. and he will decide whether he is willing to tackle that particular job.

Pricing will depend on the type of tube. Some types are easier than others to work on. Customers will need to understand that all work will be on a "best effort" basis.

I asked about where he can locate replacement electron gun assemblies. He has already purchased a decent sized parts cache, and he knows of a company in Russia that can supply at least some types.

I admire Nick for taking on this daunting challenge. Assuming he succeeds, his efforts will be gratefully appreciated by the entire antique television community. We at the NCRTV Museum will certainly want to stay in touch with him.



**The NCRTV Museum is a cooperative venture with the City of Bowie.**

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