

Introduction:

Origins of Innovation

Theoretically and technically television may be feasible, [but] commercially and financially I consider it an impossibility, a development of which we need waste little time dreaming.

LEE DE FOREST, 1926¹

The “Inventors” of Television

The evolution of television began over 100 years ago. It was not the invention of a single individual, but the evolution of theory and technology mixed with fierce competitiveness as some developers recognized the experiments as potentially profitable.

In 1873 Englishmen Joseph May and Willoughby Smith discovered that light falling on photosensitive elements produced a small amount of energy. G.R. Cary, in 1887, developed an electronic proposal paralleling systems of the human eye. Not far from Cary’s work in Boston, Alexander Graham Bell first tried to use light in the transmission of human voice. Bell’s experiments produced a system that was a forerunner to the facsimile.² It was the French who first used the principle of “scanning.” Scientist Maurice Leblanc developed the scanning system to improve picture quality. In 1883 a German scientist, Paul Nipkow, developed the mechanical scanning device. The idea of scanning produced several mechanical apparatuses, some of which hung around until the mid-1940s.

1. Lee de Forest, “Bad Predications,” reprinted in *Parade Magazine*, September 10, 1995, p. 16.

2. “Far-Off Speakers Seen As Well As Heard Here in a Test of Television,” *New York Times*, April 8, 1927, p. 1.

The inventors primarily responsible for today's system were Baird, Jenkins, Farnsworth, and Zworykin. These people were our 20th-century pioneers.

According to George Shiers, the first public demonstration of television was conducted by John Logie Baird of Great Britain.³ The demonstration, conducted in March 1925, was held at Selfridge's Oxford Street department store. It was a crude but exciting display, which attracted attention in the United States.⁴ A science reporter in attendance noted the "rather blurred, image of simple forms." Baird himself called it "astonishingly crude," but he also described it as an "outstanding miracle."⁵ He named his apparatus the "televisor." Baird had conducted numerous tests, starting in the early '20s, with a mechanical scanning apparatus. His work almost became the English standard, but it was turned aside by the British government in favor of an electronic scanning system.⁶

Charles Francis Jenkins was not far behind Baird in his television experimentation. Jenkins was an independent inventor and known in the United States as founder of the Society of Motion Picture Engineers.⁷ In the early 1920s Jenkins was experimenting with what he called "Prismatic Rings." These were rotating disks similar to Baird's. Jenkins referred to his work as "radio photographs, radio movies and radio vision."⁸ Jenkins's first public demonstration came just three months after Baird's, in June 1925. This demonstration, according to Shiers, was not as crude as was Baird's.⁹ Jenkins had arranged for an influential gathering of visitors from the Washington area to witness the events in his laboratory on Connecticut Avenue. The result produced glowing reviews in the press.¹⁰ He continued with further demonstrations over the next few weeks, giving his work a good deal of publicity.

3. George Shiers, "Television 50 Years Ago," *Journal of Broadcasting*, 19, 4 (Fall 1975): 387–399. For a detailed "prehistory" of television see Albert Abramson, *The History of Television, 1880–1941* (Jefferson, N. C.: McFarland, 1987), pp. 1–23.

4. Shiers, p. 389.

5. J.L. Baird, "Television, or Seeing by Wireless," *Discovery*, 6, 142 (April 1925): 143.

6. Christopher H. Sterling and John M. Kittross, *Stay Tuned: A Concise History of American Broadcasting*, 2nd ed. (Belmont, Calif.: Wadsworth, 1990), p. 100. See also Ronald Tiltman, *Baird of Television* (London: Seeley Service, 1933), and Tom McArthur and Peter Waddell, *The Secret Life of John Logie Baird* (London: Century Hutchinson, 1986).

7. See his autobiography: C.F. Jenkins, *The Boyhood of an Inventor* (Washington: Jenkins Laboratories, 1931).

8. See numerous articles authored by C.F. Jenkins in *Transactions of the SMPE* 1922–25.

9. Shiers, p. 390.

10. See C.A. Herndon, "Motion Pictures by Ether Waves," *Popular Radio*, 8, 107 (August 1925): 113. Also W.B. Arvin, "See With Your Radio," *Radio News*, 7, 278 (September 1925): 384–387.

In the early 1920s Baird and Jenkins set the stage. At this time television reached a critical point in its development—it was becoming recognized as a potentially profitable technology. As a result the larger electronic media began to take an interest: General Electric, AT&T, Philco, RCA, and later Farnsworth Radio and Television would all eventually overshadow television’s earlier individual inventors.

Philo Taylor Farnsworth and Vladimir Kosma Zworykin have both been contestants for the title “father of television.” Who should be credited as “father” of the invention is a discussion left to other scholars.¹¹ It is sufficient for this discussion to note that the real competitive battles for television and patent rights were yet ahead for both of these pioneers, and they would both make substantial contributions to the American system of television. Again, television was not the invention of an individual, but the evolution of technology and competitive business entrepreneurs.

Farnsworth’s story is a fascinating one. He first drew an electronic schematic for his high-school chemistry teacher. That drawing was later a turning point in a patent suit between RCA and Farnsworth Television. Farnsworth’s experiments began in 1926 in San Francisco, where his company, Farnsworth Television, was first organized. While in San Francisco, Farnsworth electronically scanned and telecast, in the laboratory, the image of a photograph of a young woman.¹² The demonstration took place September 7, 1927. It might have taken place earlier, but when an investor learned Farnsworth was going to use a line picture of a triangle and a dollar sign, he persuaded the inventor to postpone the experiment until a “real photograph” could be utilized.¹³ Today, though all of the Farnsworth patents have long expired, the Farnsworth papers claim that every set sold in America has over six of his patents in some form.¹⁴

11. See T. Ropp, “Philo Farnsworth: Forgotten Father of Television,” *Media History Digest*, 5, 2 (Summer 1985): 42–58; Stephen F. Hofer, “Philo Farnsworth: Television’s Pioneer,” *Journal of Broadcasting*, 23, 2 (1979): 153; George Everson, *The Story of Television: The Life of Philo T. Farnsworth* (New York: W.W. Norton, 1949). Popular-press debate over the title is illustrated by Frank Lovece, “Zworykin v. Farnsworth,” *Video*, 9 (September 1985): 96–98, 135–138. See also “Open Mike” letters in *Broadcasting*, January 13, 1992, p. 108; February 3, 1992, p. 46; February 17, 1992, p. 53; Albert Abramson, *Zworykin: Pioneer of Television* (Urbana: University of Illinois Press, 1995), pp. 1–5.

12. Philo T. Farnsworth and Larry Lubcke, “The Transmission of Television Images,” *California Engineer*, 8, 5 (1930): 12–33.

13. Everson, p. 94.

14. Farnsworth Prospectus, p. 17. In the Farnsworth/Meeks Papers at the Arizona State University, Hayden Library Special Collections.

Farnsworth's career and business enterprises put him in direct competition with the giant Radio Corporation of America. He, with his associates, organized Farnsworth Radio and Television for purpose of research, manufacture, and sale of radio and television receivers. They set up two television stations in Philadelphia and Fort Wayne, Indiana (see Chapter 3, WPTZ Philadelphia). Farnsworth was not only an inventor—he was a forward thinker. Unfortunately, the competition between Farnsworth and RCA was, as described by Farnsworth's wife, Elma, a “David and Goliath” confrontation—only in this situation Goliath won the free-enterprise war for corporate dominance of television.¹⁵ Farnsworth was struggling against the well-entrenched media corporations of the time. He had little financial backing, whereas RCA had the much larger budget, laboratory, and public-relations machinery. For example, in 1935, while Farnsworth was reorganizing for the third time since 1927, RCA announced it was setting aside \$1 million for public demonstrations of its television system.¹⁶

Vladimir K. Zworykin was Farnsworth's chief competitor. In charge of RCA's television development, he worked with the support of David Sarnoff and the substantial backing of RCA. Zworykin was a Russian immigrant who was first employed by Westinghouse but moved to RCA when the company showed greater interest in the development of a television system. The backing of Sarnoff and the RCA corporation provided Zworykin with a strong foundation for his work through the difficult years of the Depression and World War II. In 1929 Zworykin met with Sarnoff and convinced him that he, Zworykin, could complete television in two years and for a hundred thousand dollars. This was a significant underestimate, but Sarnoff concluded that such a development would place RCA well ahead of competitors.¹⁷ Zworykin's idea was, in reality, the beginning of an extended and costly research-development program in electronic television. He visited the labs of both Baird and Farnsworth.¹⁸ Because Zworykin and Farnsworth were both working with electrical scanning systems, they later found themselves embroiled in patent-interference cases. Again, it was a David-and-Go-

15. Elma G. Farnsworth, *Distant Vision: Romance and Discovery on an Invisible Frontier* (Salt Lake City: Pemberly Kent, 1989), pp. 128–134, 153–158. See also Kenneth Bilby, *The General: David Sarnoff and the Rise of the Communications Industry* (New York: Harper and Row, 1985), p. 128.

16. Erik Barnouw, *Tube of Plenty: The Evolution of American Television* (New York: Oxford University Press, 1975), p. 76.

17. Abramson, pp. 76–77.

18. Hofer, p. 153.

liath situation but David won this smaller battle. Zworykin's work was demonstrated at the 1939 New York World's Fair and, with the force of RCA behind him, became the most powerful innovator in the history of television.

The Industry Investment and the Government

As technology began promising the prospect of profitability, competition increased among developers and major growing corporations. Farnsworth Television's first proposed signal, a dollar sign, is symbolic of the prospects everyone believed lay ahead. Zworykin himself had left Westinghouse for RCA because of the promise of stronger financial backing. However, the capital investment required for television was significant, and throughout the Depression development was somewhat inhibited. The market crash of 1929 and its aftermath made financing a difficult task. Still, there were those who wanted to "cash in" on this new gadget called television. General Electric, with Ernst F. W. Alexanderson as chief television engineer, experimented with the mechanical scanning system. AT&T warned its competitors about the sole proprietorship of AT&T patents.¹⁹ The company was experimenting under the leadership of Herbert E. Ives, one of the Bell Laboratories' scientists. RCA had no laboratory until the late 1920s but was active in research and did take out licenses for three experimental stations. Philco started its own television work in 1928, but activities were modest until Farnsworth was hired in 1931. The Allen Du Mont Laboratories were organized in 1931.²⁰

Television evolved as radio began to mature. Headlines of the popular press touted the marvels of a number of new inventions—telegraphy, the telephone, phonograph, and radio. Television was the latecomer trying to obtain a position on the "roaring '20s prosperity bandwagon." All of this was to television's advantage—the new technologies were at least somewhat related and later provided significant financing for television's developments. This is especially true at the local-market level, where it was often

19. Barnouw, pp. 48–49.

20. Andrew F. Inglis, *Behind the Tube: A History of Broadcasting Technology and Business* (Boston: Focal Press, 1990), pp. 165–166. See also Abramson, p. 60. See William E. Denk, "An Elusive Frame of Television History," *The AWA Review*, 4 (1989): 99–109; and Allen B. Du Mont Papers at the Library of Congress and National Museum of American History, Archives Divisions.

the AM radio station that took out the television license and funded its earliest operation.

Television in the '20s and '30s was first and foremost experimental. It existed in the labs of RCA, Farnsworth Television, Philco, Bell Telephone, Du Mont, and later CBS. From the labs it moved on to the experimental-station phase—operating with experimental call letters. Sarnoff wanted FM as a television sound system, not something to replace his AM radio network stations.

Regulatory efforts and discussions preceding proposed regulation—the 1927 Radio Act and the 1934 Communications Act—focused primarily on radio and sought to organize the spectrum and establish technological standards. At the same time the radio industry requested legislation to “clear the air.” Radio was growing rapidly and developing operational patterns—the patterns we take for granted today. Most of the media attention of the 1920s and 1930s went toward radio as the new entertainment medium, as governmental debate sought to establish the rules and regulations for its operation. The radio industry continued to grow rapidly.

The Federal Radio Commission’s interest in television was purely technical, as was that of the Federal Communications Commission. In 1927 the FCC was busy parceling out a balanced system of frequency distribution for radio, but there was consideration of what was ahead for television.²¹ By 1937 interest and development had grown significantly, and the commission held frequency-allocation hearings to determine where this new technology would be placed on the spectrum. It decided that although applications for experimental stations would still be accepted, television was far from ready for national distribution. In other words, the FCC wasn’t moving at the same pace as experimentation; it desired slow and studied introspection before the commercial development of television. The industry reacted, with RCA in the lead, by pressing the FCC for standards and terms.

The adoption of these standards was important to industry because such guidelines would dictate how equipment would be manufactured. Developers were reluctant to invest capital in a system that might not be adopted. The FCC’s slow pace resulted in considerable frustration. Developers criticized the commission for being slow to establish television standards; those ready to manufacture and distribute television were stymied while others were

21. Federal Communications Commission, “The Evolution of Television 1927–1943,” *Journal of Broadcasting*, 4, 3 (Summer 1960): 199–207. The journal editor prefaces this article by noting the bias it shows toward RCA.

given the opportunity to catch up. Farnsworth, for example, at the end of the '30s, had won the patent interference case with RCA, thus forcing RCA to agree to Farnsworth's terms in the acquisition of his patents. Some considered this a significant victory for Farnsworth, and indeed it was. However, it was also a success for RCA: With access to Farnsworth's patents, RCA was ready to push forward again toward standardization with the FCC.

RCA was ready to go. Not only did it have the system prepared to push into commercial operation, it had also been competitively successful in persuading the Radio Manufacturer Association to adopt its standards for production manufacturing. This development did not sit well with RCA's competitors. Farnsworth Television accused RCA of refusing to sell it parts for manufacturing. The company saw RCA's actions as a competitive move to put it out of the manufacturing business.²² Here, again, RCA was aggressive, and its rivals were intimidated.

The FCC did not move with the speed and optimism of the inventors or the manufacturers. In 1939 the commission recommended a delay in the adoption of television standards. It wanted to study the situation further to assure itself that the adopted system would be in the public interest. In 1940, under increasing pressure from the industry, FCC chairman James Lawrence Fly appointed the National Television System Committee to study the standards and make recommendations to the commission. One year later the commission adopted the recommendations of the NTSC for industrywide operation.

World War II Brings a Halt

World War II virtually halted the development of television. As the war approached, the companies that had been developing television switched their emphasis from development to wartime sales. One hundred percent of their efforts went into the production of precision military-communications equipment, a far more profitable enterprise.

Before the war the FCC had authorized the operation of 32 experimental stations.²³ However, station construction, along with the manufacturing of receivers, was restricted by wartime regulation, and by the end of the war

22. Elma G. Farnsworth, pp. 128–134; 153–158.

23. Inglis, p. 185.

only six stations were on the air, with a total of only nine authorized.²⁴ Most of these stations operated a few hours a day, if that, as there were few receivers on the market. It was almost impossible to acquire either parts or trained personnel, most of whom were involved in the production of defense materials.

The Freeze, and the Sixth Report and Order

At the end of the war there was renewed enthusiasm and competition to get on the air. The influx of television-license applications from 1946 to 1948 grew from the nine authorized stations to 303 pending applications and 123 authorized applications (12 licensed, 25 on-air construction permits, and 86 outstanding CPs).²⁵ Realizing that the current frequency-allocation system was insufficient, and taking note of other pressing issues, such as educational allocations, UHF, and color television, the FCC issued its “freeze.” The order, coming September 20, 1948, again halted further expansion of television stations while the FCC considered allocation issues. This was a brief boon to the existing stations as they operated without competition, but frustrating to those who anxiously awaited FCC decisions before they could go on the air. According to Pepper, “By the end of the freeze there were only 108 authorized television stations, all on the air, 96 of which were fully licensed. In 1972, 106 of these original 108 were still telecasting ... two of the stations were taken over by educational broadcasters.... These 108 were distributed in 63 markets ... [and] all but three ... were in the top 100 markets.”²⁶

Of all the major corporations CBS gained the most from the hiatus, including competitive equilibrium with RCA. Although the decisions to be rendered from the freeze were primarily those of allocation, the issue of color television was also of importance. The CBS engineers, with Peter Goldmark as senior, put forward a mechanical color-reproduction system just as RCA was beginning to place monochrome receivers on the market. However, because of the incompatibility of the CBS color system with RCA’s mono-

24. Robert Pepper, “The Pre-Freeze Television Stations,” in Lawrence W. Lichty and Malachi C. Topping, eds., *American Broadcasting: A Source Book on the History of Radio and Television* (New York: Hastings House, 1975), pp. 140, 148.

25. Pepper, p. 140.

26. Pepper, p. 141.

chrome sets, CBS reasoned that, with RCA black-and-white sets already in the marketplace, its color system would be precluded. The CBS strategy was to acquire FCC approval for its color system, thus blocking RCA's sale of receivers. This approach resulted in a second battle for broadcast standards—color standard versus black and white. Although CBS played the role of underdog, RCA already had the support of the manufacturers, and its public-relations and manufacturing machinery was in place. RCA knew well how to compete and win in the marketplace.

Eventually, however, the FCC approved CBS's color system (October 1950), then rescinded its order approving the RCA system (December 1953). Although CBS had lost the initial battle for the adoption of its color system, it did gain the time it needed to become competitive with RCA once the standards were announced. The technological and regulatory foundations for television had thus been laid. In 1952 there were 108 commercial stations on the air, and growth was rapid. By 1954 the number had more than doubled to 354.²⁷

The freeze was lifted April 11, 1952, after nearly four years of frustration and contentious debate. The FCC's Sixth Report and Order led to the establishment of standards that form the foundation of the system we have today. The spectrum space was allocated for commercial television, with special channels set aside for educational telecasting. The number of VHF (very high frequency) channels allocated to most cities was increased (Channels 2–13), and the FCC opened an additional 70 UHF (ultrahigh frequency) channels for commercial licensing. Individual allocations were made on a city-by-city basis, providing both VHF and UHF assignments. The end of the freeze was a major turning point in television's history. The industry was now on its way, with somewhat of a firm footing and business operational patterns in place as well. The issues of technological development, financing, and regulation were for the most part resolved. Programming for a growing audience was the next challenge.

From Local-Station Programming to the Network

Television had a significant advantage in the development of its programming—existing radio programs and local radio stations. The busi-

27. Sterling and Kittross, pp. 632–633.

ness of radio set the patterns of operation for television, both locally and nationally. Radio networks became radio-TV networks. Television's personnel were largely trained in radio. Radio stations became combined AM-TV-FM operations as radio stations took out television licenses and provided financial support for both the early networks and individual stations. The local operational patterns of radio were adapted to and superimposed on early television stations. According to Pepper, "of the 108 pre-freeze television stations [on the air] ... 82% were held by radio licensees."²⁸ Many radio pioneers were also television pioneers. The next-most-important source of income and support was from the manufacturers. "Nine ... manufacturers owned 18 of the pre-freeze stations."²⁹

Early television-programming innovations are legion—demonstrations, motion pictures, cooking, sports—and, of course, radio's golden age was a national program resource. Shiers referred to Baird's early experiments as "the first television show."³⁰ Actually, this "show" was a demonstration arranged for members of the British Royal Institution.³¹ Programming that existed during the experimental stages was limited largely to demonstration and display—people were simply interested in the new marvel of television—and demonstration usually consisted of little more than the transmission of a photograph or an object in motion, displayed for purposes of attracting publicity and financial backing.

Programming had a long way to grow to hold its audience. One person who was questioned about his reaction to the 1939 World's Fair television demonstration responded "Who wants to watch people make speeches? That's not entertainment."³² As development moved from laboratory-styled experiments to staged public demonstrations, the first experimental television stations became established. Their programming hours were limited to a few hours each day, including the transmission of a lot of test-pattern and still imagery, but grew along with transmission capability and the number of receivers in the homes.

The design of the early television studios reflects the considerable awareness that television, like radio, was to be first and foremost an enter-

28. Pepper, p. 143.

29. Pepper, p. 144.

30. Shiers, pp. 393–394.

31. "Inventor Describes His Radio Motion Pictures. Televisor Lets Radio Fans Look In as Well as Listen," *New York Times*, April 25, 1926, sec. 9, 17:1–3.

32. Orrin E. Dunlap, Jr., *The Future of Television* (New York: Harper and Brothers, 1947), pp. 118–119.

tainment business. The first studios were large and, like most radio facilities, elaborate. Constructed to produce live programming, they emphasized audio control, lighting and smooth camera movement. Writing in 1942 and again in 1947, Dunlap talks about the “television programs that click.” Citing a BBC study of the time, he declared the audiences of London to be “quite similar” to those throughout the United States. The Londoners, he argued, wanted “plays and variety programs direct from the theatres, news reels . . . the weekly topical magazine and light entertainment. . . . Outside broadcast of sporting and other events come next, followed by full length plays, cartoon films, demonstrations and talks.”³³ Early studios and technology were designed basically to meet these programming needs, as well as to perfect picture quality.

Much of what has been written about the early years of television makes it appear that programming was instituted from the top down—that is to say, it descended from the networks to the local stations. We too easily forget that a network is merely the contractual relationship between local stations. In truth the local stations were innovative. Many network programs were not borrowed from the Hollywood movie reels or radio, but were taken from local success stories. Local stations experimented and were often successful. Their programs grew, and some eventually became the network programs we have come to know, such as KSL’s “The Mormon Tabernacle Choir,” now a CBS-network broadcast. “Boston Blackie” became the first locally produced dramatic show originating with WLWT.³⁴ Local as well as national programs were an important part of a television station’s operation. Although some programs appealed only to local audiences, others would move on and succeed nationally.

There were several mainstays in early programming: talk, kids’ programming, sports and the motion picture.³⁵ Samuel Goldwyn reported in 1949 that the motion-picture industry was on the verge of its third era: “First there was the silent period, then the sound era. Now we are on the threshold of the television age.”³⁶ Many local stations, and experimental ones as well, used the motion picture, especially shorts, to fill time within their brief program schedules. KCBS, Los Angeles—during Don Lee television years

33. Dunlap, pp. 48–49.

34. See Chapter 9 in this volume.

35. Harrison B. Summers, “Programming for Television,” *Quarterly Journal of Speech*, 31 (1945): 44–47.

36. Samuel Goldwyn, “Hollywood in the Television Age,” *New York Times Magazine*, February 13, 1946, pp. 15, 44, 47.

—programmed over 10 million feet of motion-picture film the seven years it was on the air.³⁷

In the case of many local stations those on the air first had the distinct advantage to develop a strong affiliate relationship, a talent base, film resources, and live local programming—something beyond a test pattern. The actual expansion of the broadcast program schedule usually coincided with efforts to promote the sale of television sets. Local bars invested in sets to broadcast sporting events and to lure potential male viewers. A sometimes disproportionate number of first-day broadcasts from around the country featured wrestling or professional boxing matches surrounded, of course, by a lot of talk and ceremony. Sports grew from these local beginnings to national telecasts of football, baseball, and even bowling.³⁸

Programs for homemakers and children were usually next in priority. Cooking shows were the first offerings and predate the soap-opera genre. Cartoons for the children were from Hollywood and were ready-made resources for stations in need of children's programming. The syndicated cartoons were mixed with a local clown or a colorful, fun-loving host who entertained a live children's audience and provided transitions between cartoons. These first children's programs introduced today's baby-boom generation to cartoons and comedy shorts "Our Gang," the "Three Stooges," or "Bugs Bunny" were introduced by someone called Bozo, Cookie, Corkie, Captain, Cowboy Bill, or Texas Joe. These were augmented by the national programs such as "Howdy Doody," "Kukla, Fran and Ollie," and eventually "The Mickey Mouse Club." The local program riveted the attention of its audience to the "idiot box," watching live performances and sometimes going in as a group of scouts or a school class to participate firsthand in the program. These programs produced interaction between the community and the local station long before the word "interactive" was popular.

In most markets television news programs today account for a substantial element of the station income. This has not always been the case, but television news is an important part of most stations' histories as well as their involvement in the community. According to Nielsen, news programming began with the experimental stations of the 1930s.³⁹ He claims that the first television news special was broadcast on WCBW, New York—a nine-hour

37. See Chapter 17 in this volume.

38. Barnouw, pp. 347–350.

39. Ted Nielsen, "A History of Network Television News," in Lawrence W. Lichty and Malachi C. Topping, eds., *American Broadcasting: A Source Book on the History of Radio and Television* (New York: Hastings House, 1975), p. 421.

report on Pearl Harbor. “At that time the CBS station was the only TV subscriber to the United Press radio wire and had a news staff of two.”⁴⁰ Nielsen doesn’t elaborate on how the station accomplished that feat but does note that it broadcast two news programs daily on a regular basis. Not until 1948 did a network schedule a regular news program in its lineup—CBS-TV News with Douglas Edwards. The “NBC Newsreel,” featuring John Cameron Swayze, began in 1949 and was soon followed by similar network offerings on ABC and Du Mont. At the local level, television news was usually conducted by just one or two people. These folks made up the news departments, shot the film, edited the wire copy, kept the assignment-desk files current, and produced and anchored the news programs.

News began to be financially successful at a local level during the ’60s. WABC was instrumental in developing a format that spread to local stations throughout the nation—“action news.” It was known by different titles—“Eyewitness News,” “Action News,” “Happy Talk”—but introduced a faster-paced, localized format to the audience. Critics today call it tabloid and often blame the social science research news consultants for its spread. However, clearly this local development has today become a major program genre.

The ’60s and ’70s marked the beginning of a number of trends that transferred the power base from the network to the local station. Technology and deregulation placed emphasis on the marketplace—a marketplace both local and national. The technology of satellite, electronic news gathering (ENG), and electronic field production (EFP) helped pass the control from the network to the local stations. Heretofore the local station had been dependent upon the network to cover a nationally breaking news story. The local station acquired its visual material from the network via the evening news and material fed to the station as delayed electronic feeds (DEFs). Occasionally a local station would provide a news feed to the network—you see these reports credited at the end of a network news feed. Today, however, the local station, via satellite and ENG/EFP technology, can cover a story no matter where it occurs. For example, almost every major-market local station in the country had a reporter “live” in Los Angeles at the O.J. Simpson trial—the control was local.

Local stations today use their elaborate production facilities not only to produce news, but to create material for syndication. The talk shows, “produced in the facilities of ...,” are delivered via satellite rather than

40. Nielsen, p. 421.

through the network. In effect, an alternative “network” is established contractually—contracts to produce, contracts to perform, contracts to deliver and distribute, all link local independent and traditional affiliate local stations.

Summary

As the nation approaches its first half century of television, scholars have often overlooked the importance of the local station in the foundations of our history. Television began as an individual’s scientific theory. People such as Cary, Bell, Leblanc, Nipkow, Baird, Jenkins, Farnsworth, and Zworykin developed experiments based on the transmission and reproduction of electromagnetic energy. Their experiments often received a great deal of press attention—they were described as crude, yet miraculous.

As these scientists began to realize the potential profit in their experiments, large corporations began to take an interest and provided the necessary financial backing. The experiments grew from simple demonstrations to the establishment of experimental stations—those stations with an X in their call letters. These experimental stations were key stations, and they were local stations. They served a local audience as they experimented with technology and programming in the hope of expanding. Key stations owned by the networks (RCA/NBC, CBS, and ABC) became production centers for the network as well as stations licensed to, and serving, their own communities. Key stations were not always experimental or network owned and operated (O&Os). WPTZ, Philadelphia, was a key station in the development of Philco television. WGL, Fort Wayne, was a key station in the development of Farnsworth Television. WABC, New York, was a key station in the development of the ABC network. KSD was key to Pulitzer Broadcasting, just as KSL was to Bonneville. These stations acted as experimental and developmental operations for those with a vested interest in television. Here, again, they served as centers of experimentation as well as local stations serving local interests.

Radio played an important role in the development of television. Radio was the new medium of the era, maturing as television was just beginning to evolve. The technologies were obviously related, and as a result of radio’s interest in television many of the first local stations across the nation were

underwritten by the profits from a successful radio operation. Radio stations took on the burden of financial support for both the early stations as well as the networks. The local operational patterns of radio were superimposed on television; they became AM-FM-TV combined operations. Early talent, technology, and business operations were easily adapted from radio to television.

The government also played an important role in the development of television, although not at the pace many experimenters had hoped. The FCC was slow to adopt television standards; it wanted to make sure its actions would result in the public's best interest. The FCC's pace resulted in considerable frustration. Corporations ready to manufacture and distribute sets were stymied while others were given the opportunity to catch up. RCA was clearly ahead of CBS, but by the end of the freeze CBS had caught up and was ready to compete.

The programming innovations of local television are legion. Much of what has been written about those early years would make it appear that everything emanated from the network and was passed on to local stations. In reality, however, many programs and personalities were successful at the local level before they were nationally distributed.

As we approach our first half century of television, *Television in America* looks at the history of an industry from a local point of view. There are some interesting ramifications: What would have happened to the ABC network without the support of its key station, WABC? What effect did KSL television have on the Mormon Church communication empire? Can stations in Atlanta and Orlando be credited with promoting a civil-rights agenda before it was politically correct? Would the Kefauver hearings have taken on as much national significance had it not been for the local coverage of WMAL-TV? Without the efforts of WEWS's Dorothy Fuldheim and Nancy Craig at WABC, would women have been welcomed in the nation's news-rooms?

These questions represent surface inquiry. Some are addressed here; for others we have worked to set the stage of scholarly inquiry.

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