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# Hugo Gernsback and Radio Magazines: An Influential Intersection in Broadcast History

**Keith Massie and Stephen D. Perry**

*Hugo Gernsback's contributions to the development of early radio have gone largely unheralded. This article concentrates on how his role as the most influential editor in the 1920s radio press influenced early radio experimentation, regulation, growth, and popularization. His publications promoted radio among hobbyists and novices, but also encouraged experimenters and innovators. He often described ways in which radio could be improved down to the publication of technical diagrams. He built his own radio stations where he tested many of the innovations his magazine promoted. Gernsback's greatest personal satisfaction derived from encouraging broad experimentation that enhanced scientific development.*

The story of broadcasting involves an amalgam of people who influenced its development and direction. Names like Guglielmo Marconi, David Sarnoff, William Paley, Lee De Forest, Reginald Fessenden, Frank Conrad, Alexander Popov, and others have become well known for their work in inventing, developing, and promoting pieces of the puzzle that became the medium of radio. Others have remained no more than historical footnotes. One person who has been little more than a footnote in broadcasting but whose fame lives on in another area is Hugo Gernsback, the father of science fiction and namesake of the Hugo Award for science fiction writing.[1] Yet he may have been one of the most influential figures in promoting radio experimentation and adoption by amateur hobbyists in the 1910s and 1920s, and in campaigning for regulatory directions for radio in the days before the establishment of the Federal Radio Commission.

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*Keith Massie (B.A., 1996; B.S., 1998, Southern Illinois University Carbondale) is a masters student at Illinois State University. He plans to pursue a Ph.D. in media ecology.*

*Stephen D. Perry (Ph.D., 1995, University of Alabama) is an Associate Professor at Illinois State University. His research interests include broadcast history, media effects, and electronic media programming.*

Although he was a broadcaster himself, Gernsback's primary influence on broadcasting was as a writer and editor in the specialized fields of electronics, radio, and even experimental television. He influenced radio regulation through published editorials and the weight of his organized association of radio enthusiasts. He wrote and edited articles that influenced other experimenters, and his predictions for the future of radio encouraged invention and proved prophetic as the newborn medium developed and grew.

This research article will detail his importance as the initiator of and as an influential editor in the radio press from 1908 to 1929. It will analyze his *Radio News*, arguably the greatest early radio magazine, to shed light on Gernsback's influence on the growth of broadcasting.

## OVERVIEW AND BACKGROUND

An understanding of Gernsback's impact in publishing and broadcasting requires preliminary understanding of Gernsback as a businessman, an inventor, and a dreamer. Thus a brief overview of his work in these areas is necessary.

### Origins in Business

Hugo Gernsback was born Hugo Gernsbacher on August 16, 1884, in Luxembourg City, Luxembourg. No one knows if he changed his name legally or simply adopted the shorter form when he arrived in the United States (Bleiler, 1998). Gernsback "bought a first class ticket to Hoboken on the Hamburg American liner *Pennsylvania*, got himself a set of calling cards which identified him as 'Huck' Gernsback, bundled up two models of the most powerful battery in the world, made a touch of $100—his last—on the family exchequer, and set out to seek his fortune in the new world" ("Barnum of," 1963). In 1904, at the age of 19, Gernsback arrived in the "new world."

Gernsback wasted no time establishing himself. Launching into business, Gernsback persuaded the Packard Motor Car Company to purchase his remodeled dry cell for use in the ignition of their horseless carriage ("Barnum of," 1963). In 1905, he opened the Electro-Importing Company. The company "imported specialized electronic equipment from Europe and helped supply many of those who wanted to make their own radios and transmitters" (Jenkins, 1997).

Through this company, Gernsback began to produce the first commercial home "radio" set that featured both a transmitter and receiver—the Telimco wireless (the name was made up from ***T***he ***El***ectro-***Im***porting ***Co***mpany) (McElroy, 1995, p. 37; Stashower, 1990). On December 9, 1905, Gernsback placed the first advertisement for a radio kit in an issue

of *Scientific American*. The ad guaranteed reception up to one mile for a price of $7.50 (The National Association, 2001). "The Telimco was sold so inexpensively that the Mayor of New York City received complaints regarding it, and police even went so far as to investigate Gernsback for possible fraud" (McElroy, 1995, p. 37). The kit allowed the radio hobbyist to use the transmitter only to ring a bell on the receiver, much like Guglielmo Marconi had done in his initial tests with wireless. Even so, this rudimentary radio device that worked up to a one-mile distance was a hot seller for Macy's, Gimbels, and Marshall Field's department stores (Stashower, 1990).

Gernsback was well known among serious radio amateurs. His Electro-Importing Company, located on Fulton Street in New York, was a source for just about anything the radio enthusiast wanted. Edgar Felix, who later worked at WEAF (the flagship station first of AT&T's network and then of NBC Red) reported having bought headphones there for his radio hobby as early as 1910. Similarly, Stanley Manning, a broadcasting pioneer in Detroit, "made a pilgrimage to the Electro-Importing Company run by Hugo Gernsback, who sold 'the biggest bunch of junk you ever saw,'" in the early 1910s (Barnouw, 1966, p. 30).

The company branched out through publication of a mail-order catalog and introduced Gernsback to what would become his life-long profession—publishing. That part of the story, however, will come later.

**Ideas Become Inventions**

Throughout his life, the creative Gernsback constantly dreamed of possible technologies leading him to create both practical and impractical inventions. In addition to his dry cell improvements for the horseless carriage mentioned previously, in 1909 Gernsback invented the first walkie-talkie (Miller, 2002). Gernsback also invented the "Hypnobioscope" and "Isolator." The former was a device designed to educate people while they slept; the latter was a helmet that he believed filtered distractions and increased pure thought (Stashower, 1990). At his death, Gernsback held 80 scientific patents. Gernsback's most noted invention was the "Phonosone" or "Osophone." It was an instrument that functioned as a hearing aid by having sound waves travel through an individual's teeth (Miller, 2002; Stashower, 1990).

**Hugo 124C**

Whether wearing his "Isolator," as he was known to do, helped Gernsback or not, he more frequently imagined devices that would later be invented by others rather than inventing them himself. In 1930, he speculated that space exploration would make use of multistage rockets and tethered space walks. He also contended that man would walk on

the moon by 1970. Gernsback's technological insights led him to envision the future inventions of jukeboxes, stainless steel, plastic, television, and solar power ("Barnum of," 1963). Maybe the most noteworthy example occurred in 1911 when Gernsback specifically described radar and estimated that it would take 2.5 seconds for a signal to be reflected from the moon's surface back to Earth. It would take until 1924 for British physicist Sir Edward Victor Appleton to use radar to determine the height of the ionosphere and until 1935 for Sir Robert Watson-Watt to develop radar to the practical state of locating aircraft (Davis, 1997; Stashower, 1990). Furthermore, American military communications experts bounced a radar signal off the moon in 1946 and found that the procedure took 2.4 seconds (Stashower, 1990).

Gernsback's temperament often prevented him from sticking with an idea and carrying it through to creation. He preferred the "hit-and-run style of brainstorming" perfect for magazine and science fiction writing (Stashower, 1990, p. 49). His first science fiction work was given the title "Ralph 124C 41+" (Stashower, 1990). The title could have reflected Gernsback himself—he was 124C (one to foresee).

Gernsback's more than 50 published magazine titles served as the outlet for all this prognostication. Thus we now turn to this area to investigate his means of primary influence on the field of broadcasting.

## THE START OF THE RADIO PRESS

Gernsback's mail-order component of his Electro-Importing Company had led him into catalog publication. Perhaps he decided that his catalog would be more desirable if it contained stories of machines that could be made with the parts he was selling. Whatever the motivation, Gernsback's first magazine, *Modern Electrics*, was born with articles such as "How to Make an Electric Whistle" and "Electrical Patents of the Month." The magazine, however, quickly became devoted to radio, and it is generally credited as being the first radio magazine (McElroy, 1995; Stashower, 1990). The first publication of *Modern Electrics* came out in April 1908 and was "a slim thirty-two-page pamphlet describing simple electrical devices, answering simple questions, and offering a three-page editorial exhorting the reader" (Bleiler, 1998, p. 143). Gernsback published and edited the first few issues himself before bringing Victor Laughter in to edit the magazine in 1910 (Bensman, 1985). Gernsback continued to write actively for the magazine. Even if most researchers believe *Modern Electrics* to be the first radio magazine as Gernsback (1923b) himself stated, there is some room for debate. Sterling (2001) contends *Modern Electrics* was only a mail order catalog. One can see from the cover of *Modern Electrics* that this contention has some

weight. In his article "Remembering Hugo Gernsback," McElroy (1995) has a picture of the cover of an issue of *Modern Electrics*. Under its title, *Modern Electrics*, it reads "CATALOG No. 4." McElroy calls it Gernsback's company catalog. Was *Modern Electrics* the first radio magazine or simply a repackaged mail order catalog?

Baran (2002) suggested that the inclusion of articles and features as well as the creation of plotlines are key features that distinguish magazines from catalogs. It was in *Modern Electrics* in 1911 that Gernsback first began writing science fiction, using it for filler before finding demand for it from his readers (Stashower, 1990). Regular editorials such as those referred to below also give *Modern Electrics* stature as a magazine.

*In those early days the wireless amateurs in this country were a rather reckless sort of element and became more and more disliked on account of their growing mischief. False distress and alarm calls by perverted 'humorists' were the usual 'smart' acts, and when a coastal station received a C.Q.D. call in those days the thought was always uppermost in the operator's mind that the call was one of the usual amateur hoaxes. Despite Mr. Gernsback's vigorous warnings through his editorials in* Modern Electrics, *the mischief continued, till in 1910 several bills were introduced in Washington which fairly promised to throttle the activities of every wireless enthusiast in the country. (The Electrical Experimenter, Dec. 1915, p. 381)*

Gernsback claimed that at least one editorial in *Modern Electrics* influenced the wording of radio legislation. Of course, the weight of the Wireless Association of America (perhaps the first wireless club in the United States), which he had organized in 1909, played a role as well. In 1910, Gernsback claimed the organization had 10 thousand members (Douglas, 1987).

*Through the Association, Mr. Gernsback caused thousands of letters to be written to Washington officials by the wireless amateurs, and he furthermore succeeded in enlisting the press of the country in taking up the cry to save the amateurs from hostile legislation. All this had the desired effect, and when finally in 1913 the Alexander Wireless bill,* amended, *was signed by President Taft, thereby becoming law, it contained almost word for word Mr. Gernsback's historical recommendation of his editorial in the February 1912, issue of* Modern Electrics. (Radio League, 2002, p. 1)

Although the Alexander Wireless Bill (which would later be passed as the Radio Act of 1912) was amended to allow amateurs to transmit

below 200 meters, it did not fully accept Gernsback's suggestion in his *Modern Electrics'* editorial because he also recommended that amateurs be allowed to transmit above 1000 meters (White, 2001). Nevertheless, it is clear that *Modern Electrics* was more than a catalog based both on its ultimate literary importance as the first venue for Gernsback's science fiction writing and on its use of regular editorials.

In 1913, Gernsback changed the name of his magazine from *Modern Electrics* to *The Electrical Experimenter.* He simultaneously changed his publishing company's name. Modern Electrics Publishing Company printed *Modern Electrics,* but Experimenter Publishing Company published *The Electrical Experimenter.* Clearly, this first magazine of the radio press was the mainstay of each publishing company.

In October of that same year, Marconi Publishing Corporation began producing *The Wireless Age* (Barnouw, 1966). In 1915, *QST,* another radio magazine, began addressing amateur radio enthusiasts and still continues its monthly magazine today as the official organ of the American Radio Relay League (ARRL). Thus began the start of competition in the radio magazine arena.

In 1919, Gernsback started *Radio News* magazine, the most prominent of his radio publications. *Radio News* was another product of his Experimenter Publishing Company. Gernsback was publisher and editor-in-chief of *Radio News* from 1919 until its April 1929 issue, although the magazine would long outlive his editorship. He still published and edited *The Electrical Experimenter* as well, and in 1920 Gernsback changed the name again to *Science and Invention.* The change in name also was a change in format and content. *Science and Invention* moved away from primarily radio content and focused instead on "science and technology news, extrapolations of science, speculations, survey articles by well-known figures, explanations of stage magic, exposes of so-called supernatural phenomena, contests, curiosities of crafts, and much else" (Bleiler, 1998, p. 144). This change lasted until the magazine's final issue in September 1923.

Radio broadcasting grew dramatically in the United States between 1920 and 1922, creating excitement in the popular imagination in a manner that was rare and perhaps unprecedented (McChesney, 1993). Many hobbyists acquired federal licenses for amateur transmission, which required operators to pass a test in Morse and Continental telegraphy codes. Some of these hobbyists also rigged their transmission equipment for voice broadcasting. However, by January 1922, all voice broadcasters had to apply for new licenses through the Department of Commerce with amateurs limited to point-to-point communication (Smith, 1998). The audience's interest in this explosion was partly the result of radio shifting from a point-to-point to a broadcast medium.

Radio station KDKA brought regular commercial radio broadcasting to prominence with their maiden broadcast on election night in 1920 (Barnouw, 1966). As a result of the popularity of broadcasts from stations that copied the KDKA formula as well as improvements in radio technology, people's interest in obtaining radio receivers mushroomed. Sales of radio sets and parts totaled $60 million in 1922, $136 million in 1923, and $358 million in 1924 (Douglas, 1987).

This increase in listening interest seems to have opened the floodgates for magazines competing with *Radio News* in the early 1920s as well. Barnouw (1966) notes the trade press grew fast during 1922 filled with optimistic predictions of startling things to come. *Radio World, Radio Dealer,* and probably *Radio Digest* were launched in April, *Radio Broadcast* in May. Some of the magazines of this period were short lived. One radio magazine, *Radio Review,* was started in May 1925 and ended in 1926. *Mid-west Radio Magazine,* published in St. Louis, had an even shorter life. It started in November 1925 and lasted only until April 1926. *Radio Broadcast* lasted through the 1920s, but stopped publishing in April 1930. This seems to indicate there was considerable competition during this time period.

How many different radio magazines were published in the early development of radio? An exact number is uncertain, but one can get an approximation. Using the WorldCat (FirstSearch/OCLC) database, 50 monthly or quarterly English language magazines emerge on either radio or radio broadcasting between 1907 and 1929. The vast majority of these were published in the United States starting after 1920.

## *RADIO NEWS* IN THE GERNSBACK YEARS

A magazine's cover tells about its editor's and publisher's promotional attitude and style. Covers of the "Gernsback era" issues of *Radio News* magazine reveal his willingness to promote his own success. They also show a variety of adjustments made through the years. The oldest covers from the August and September 1919 issues of *Radio News,* volume 1, numbers 2 & 3, say *Radio Amateur News,* but the word "amateur" is smaller and wedged between the two larger words "radio" and "news." From the beginning, the covers featured a colorful picture. The August 1919 issue, for example, has a bright red drawing of a car on the road with the caption, "And now, the auto radio phone." The magazine initially showed a cover price of 15 cents. By September 1920 the word "amateur" had disappeared from the title banner. The price had also increased to 20 cents and the magazine claimed to be "the 100% wireless magazine."

By June 1921, *Radio News* claimed across the top of its cover to have a "circulation larger than all other radio magazines combined," a claim that was repeated in most successive issues in some modified form, including "Over 350,000 copies of this issue," "Circulation larger than any other radio publication," and "Radio's Greatest Magazine." From the December 1927 issue through the April 1929 issue, Gernsback's last as publisher, the claim was always "Radio's Greatest Magazine."

By the December 1925 issue, the cover layout had stabilized in the form it would maintain for the last four Gernsback years. In addition to a price increase to 25 cents, two features specific to Gernsback's tenure included a statement under the title box that read, "Edited by Hugo Gernsback" and a logo to the right of the title box with the call letters of radio station WRNY, Gernsback's own radio station begun June 12, 1925. The call letters for Gernsback's short-wave station W2XAL were used in addition to WRNY only once. Interestingly, this was on the May 1929 cover, the first after Gernsback's departure. Apparently, time had not permitted a cover redesign before publication in May, but these were the last references to Gernsback's broadcasting outlets.

### Inside *Radio News*

Gernsback's bold promotion of himself and his broadcast outlets continued inside the magazine's pages. The first article in every issue was a Gernsback editorial. This one page feature trumpeted Gernsback's name in bold type as many as three times. Once declaring him editor and publisher, once as author of the article, and once in a line across the bottom of the page advertising the specific time of his personal radio talks on WRNY.

#### *Editorials*

These editorials frequently reported on the latest trends in the industry, set straight the latest myths, and campaigned for future direction in invention, innovation, and regulation. Such campaigns were often the editorials in which he proved prophetic. Gernsback often looked at the current developments in radio technology and predicted how the medium would be improved in the future. For example, in his December 1923 editorial he predicted:

> *We believe that the vacuum tube, although remarkably good today, will eventually be found only in industrial works. But it will have no place in radio reception. Other devices will take the place of the vacuum tube, as the coherer made way for the detector, and as the detector made way for the vacuum tube. (Gernsback, 1923c, p. 679)*

In the same editorial he also predicted developments in the amplification and delivery of sound.

> *We are still awaiting the loud speaker without a horn. Why the horn was ever thought of is just another of the unsolved radio mysteries. When a human being speaks, he uses no horn. The cricket makes a sound that can be heard for half a mile, the sound coming from a surface less than 1" square; and again there is no horn! . . . One of these days someone . . . will do some thinking of his own and the result will be a loud speaker that speaks loudly and which is smaller than your fist. (Gernsback, 1923c, p. 679)*

In his science fiction writing, Gernsback stated his hope that "prophesy disguised as fiction . . . might even become a positive incentive to discovery, inspiring some engineer or inventor" (Carter, 1972, p. 834). It is clear that this philosophy of inspiring others was practiced in his radio publications, especially through his editorials, before he introduced it to the new realm of science fiction literature.

***Technical news***

Gernsback initially targeted the magazine to the technically savvy radio user, as was necessarily the case in 1923. Most radio owners had built their own sets, and even if they had purchased a pre-made set, operating it efficiently to pick up the sounds of broadcasters took some additional level of expertise. Gernsback frequently encouraged people to become radio experimenters, as opposed to broadcast listeners or radio amateurs (those who picked up and passed along radiotelephone messages). He coaxed them to make specific improvements that would simplify the use of radio transmitters and receivers (Gernsback, 1923a; 1923b). Thus the magazine regularly contained articles with technical drawings, diagrams of electric circuits, and pictures of homemade devices. Gernsback (1928) suggested this filled the magazine's stated policy of being "instructive first and last" (p. 1097). In August 1923, for example, the magazine contained a story entitled "Short Wave Directive Radio Transmission," written by a pair of physicists, another called "The Wave Filters," written by an electrical engineer, and a third entitled "Electrons, Electric Waves, and Wireless Telephony," which is a reprint of scholarly lectures on the subject. Specifically, *Radio News* boasted prominent writers including Lee De Forest and John Ambrose Flemming, both early developers of the vacuum tube. Still, the issue contained stories to appeal to those less sophisticated hobbyists such as "How Bertha Brainard 'Broadcasts Broadway,'" and "What Radio Can Do for the Country."

In May 1924, Gernsback's editorial was aimed at the radio beginner and served as a one-page primer on what kind of set to buy to start listening. He wrote it because of the beginner's difficulty in knowing how to get started and because "only too often has the novice gone to a radio store, only to be sneered at and have fun made of his questions" (Gernsback, 1924, p.1553). Nevertheless, specialized subjects could be found within the pages of that issue with stories about the difference between and usefulness of directive and nondirective radio beacons and "Wired Radio Experiments for Amateurs." Other articles about then high-tech inventions were written in language accessible to the general public, and especially so to the person familiar with building and operating a radio receiver.

The similarities between Gernsback's publishing philosophy in *Radio News* and in his science fiction publications are instructive. In his *Amazing Stories*, the world's first science fiction magazine begun in 1926 as a companion publication to *Radio News*, his targeted audience was also more technically savvy. He again aimed above the general pulp-magazine reader for the amateur physicist, astronomer, chemist, or even radio experimenter (Carter, 1972). He employed highly educated people to insure the accuracy of the science in his fiction, both in the writing and in the drawings and artwork. His managing editor, for example, had a Ph.D. in chemistry. A subsequent Gernsback magazine, *Science Wonder Stories*, had a panel of experts affiliated with reputable institutions like Dartmouth and the American Museum of Natural History who checked for scientific accuracy. Among them were botanists, astronomers, mathematicians, a chemist, an astrophysicist, a physician, a psychologist, a zoologist, and an entomologist. Former *Radio News* contributor Lee De Forest, inventor of the audion tube, triode, audio oscillator, and phonofilm method of sound recording, was on the *Science Wonder Stories* panel as a physics and radio expert. As in *Radio News*, however, Gernsback occasionally broke from the pure science approach by including a more pedestrian piece, perhaps to attract a wider variety of readers as a hedge against his primary business model that focused on special-interest readers (Carter, 1972).

***Entertainment***

Gernsback clearly understood that entertainment was important to attract readers to this technical radio magazine. In addition to the experimentation oriented articles and those targeted to hobbyists, in 1925 nonnews features began like "Radiotics," which asked listeners to send in misstatements from other publications that dealt with radio. For example, one listener sent in a quote from a Philadelphia newspaper that advertised "built sets with OR WITHOUT MATERIAL" [emphasis in

original] ("Radiotics," 1928, p. 199). Gernsback also featured several pages of mostly photo essays by 1925. This section was oriented toward the radio channel surfer of the day. The photos featured station personnel, odd places to listen, and photos of broadcast outlets.

New to the magazine in 1926 was the listing of call letters for broadcasting stations located throughout the United States. The idea for this feature probably came from another publication Gernsback edited starting in 1925 called *Radio Listeners' Guide and Call Book*, a quarterly magazine. *Radio News* also published lists of stations received by people in various locations who had written in to the magazine. However, writers almost exclusively reported hearing amateur stations rather than commercial broadcasters in these listings.

Readers also wrote in with their own "radio jingle" creations. Gernsback's printed "jingles" had no music but instead used rhymes that included symbols representing various radio components that might be found on diagrams for new circuits or instruments. For example, a telegraph key might be pictured in place of the word "key" in a rhyme. The symbol for "resistance" in a circuit was included in another jingle. The jingles tested the reader's ability to translate radio symbols.

As with Gernsback's science fiction writing that clothed science in entertainment, it seems that from 1923 through 1926 features attempted to make the magazine more amusing. Although these features still existed in 1927, the attempt to make the magazine more attractive to advertisers again introduced a high level of technical content to the news stories. In 1928 this trend was reversed, and a feature called "Broadcastatics" was added. This feature filled one page of each issue with radio related cartoon, rhyme, and riddle humor. Articles on international broadcast stations were found in the late 1920s as well.

**Advertising Support**

Advertisements promoted the sale of radios, radio parts, and accessories as well as training in radio operation and the sale of books and publications. A snapshot of the inside of the magazine beginning in July 1923, the earliest full copy available to the authors, shows that nearly 200 advertisers bought space in the magazine. The magazine averaged around 150 pages of content per issue in 1923 with the largest issue coming in December with almost 300 advertisers and 190 pages. But by summer 1927, advertising levels were somewhat less at around 120 companies buying space in just fewer than 100 of the magazine's pages. In December of that year, the Christmas season brought that number up to only around 170 for a 143-page issue. The declining trend continued. In June 1928, advertisers numbered only in the 80s.

It is likely that the decline in advertisers was partly related to the increasing standardization of the radio industry. Radio experimentation was becoming less essential for enjoying the hobby and perhaps the magazine was losing some readership in this environment, although it still claimed to have the largest circulation (Gernsback, 1928). Declining circulation is suggested by the use of the "Radio's Greatest Magazine" slogan, the most subjective banner claim. The number of companies looking to advertise as they tried to break into the radio sales market with their new improvements in the field was also decreasing. In fact, the number of dealers selling radio parts went from 30,000 during the radio boom [c. 1922] to around 2500 at the end of 1926 (Gernsback, 1928). Perhaps this accounts for the decline in advertising. Clearly this loss of advertising dollar contributed to the eventual bankruptcy of the publisher in 1929.

The loss of advertising led *Radio News* to begin publishing the names of businesses within its editorial pages in 1927, breaking a long-standing rule that kept business names within the advertising pages only. Surely it was thought that increased attention would encourage radio parts manufacturers and others to buy more advertising. This resulted in an increased number of articles about various radio circuits and apparatuses that could be built by buying parts from manufacturers. This policy failed to generate increased income and probably hurt circulation. So, in April 1928 the magazine eliminated the names of companies from its news pages and limited the number of radio construction related articles to one per issue (Gernsback, 1928).

In another effort to stem the tide of advertising losses, Gernsback announced in April 1928 a "business only" edition of the magazine that was available only to the more than 30,000 readers who were radio manufacturers, distributors, and retailers. The *Radio News Dealers Personal Edition* was available for $1.50 per year to dealers who asked for it on their business letterhead. This effort was clearly designed to attract business-to-business advertisers who didn't care to reach the hobbyist or the radio listener ("New Addition," 1928).

## TESTING THE TECHNICAL

Many publishers who started radio stations in the 1920s thought of them as subsidiaries of the publishing business. For Gernsback, the connection was perhaps more symbiotic. First, the radio station programs covered topics on which the magazine had published. Conversely, the magazine published word-for-word reprints of interviews heard on the station. Second, Gernsback used WRNY as a broadcasting laboratory to evaluate the usefulness of various radio inventions and

reported these inventions to listeners and readers. The call letters of the station stood for *Radio News* Station New York ("WRNY Opening," 1925).

In August 1925, WRNY was promoted within the pages of the magazine along with its 4-day per week broadcasting schedule. It began by airing "talks" by the editors on Monday at 9 p.m., Wednesdays and Thursdays at 8:30 p.m., and Fridays at 9:15 p.m. ("WRNY Opening," 1925). Later articles would talk about the expansion of broadcasting activities on WRNY. In fact, every few issues a cross-promoting story about WRNY was sure to be included among the articles in the magazine. Gernsback was certainly not shy about promoting his broadcast outlet. The station aired at 920 kHz, while its sister station, which developed later on short wave, W2XAL, was at 9705 kHz (Ross, 2001).

Gernsback weekly used the radio medium to speak on various radio and scientific subjects (Gernsback, 1929). Through these channels, Gernsback began some of the first regular television broadcasts along with the help of John Geloso, promoting the sale of experimental television receivers and encouraging *Radio News* readers to construct their own (Hertzberg, 1929; Stashower, 1990). Some of his *Radio News* editorials were about "Radio Television" (May, 1924), which a few months earlier was called "Radio Vision" (Dec. 1923), and later simply "Television" (August, 1925; May, 1928; Jan., 1929). Actually, a 1909 article in *Modern Electrics* had detailed Gernsback's design for a crude television called the "telephot." Showing again his interest in encouraging other inventors, he ended the article by stating, "No patents were taken out on this invention by the writer, as he considers the device too complicated for general use. He shall, however, consider himself happy if it will be the means to bring us nearer to the practical Telephot" (Gernsback, 1909).

The choice of articles in *Radio News* shows that Gernsback was fascinated with the idea of sending pictures via "radio." The magazine claimed in 1926 to have "published more articles on Television than any other agency" (Dinsdale, 1926). It is also clear that Gernsback saw this as continued development of radio, not the birth of a new medium. Lange (2002) insisted that Gernsback popularized television by reaching a public made up of amateur radio buffs. He said one could not deny Gernsback was the great propagator of television. Gernsback even edited and published two issues of a magazine called *Television*, the first in 1927 and the second in 1928.

Gernsback's broadcast stations, therefore, had to test the new television technology as well. He used a mechanical system similar to the one invented by Paul Nipkow in the late 1800s in which a spinning mechanical disk scanned the image in front of a stationary

television camera (Hertzberg, 1929; Perry, 2001). This generated electrical signals at rates that would have produced something less than the standard of 48 lines of resolution at 15 frames per second as suggested by the Radio Manufacturers Association Television Standards Committee (RMATSC) in October 1928. Gernsback's disk turned at only half the recommended speed. The RMATSC hoped to provide some initial level of standardization even while improvements were being made and to encourage experimenters to build receivers (Hertzberg, 1929). Still, Gernsback produced viewable broadcasts that began in August of 1928.

*Aug. 13, 1928. WRNY Coytesville, NJ, becomes the first standard radio station to transmit a television image (the face of Mrs. John Geloso). It was a 1.5 square inch image enlarged by a magnifying glass to three inches so it could be viewed by 500 persons at Philosophy Hall at New York University. Station also operated W2XAL New York, 9.705 MHz. (Ross, 2002)*

WRNY broadcast sight and sound alternately rather than simultaneously. Viewers would first see the face of a performer and a few seconds later would hear the voice. Gernsback used a system designed by Theodore Nakken with receivers built by the Pilot Electrical Company for these broadcasts. The performances took place for 5 minutes every hour and were designed to lure the radio audience into buying "televisor" sets from Pilot. (Fisher & Fisher, 1997).

With the lack of simultaneously broadcast sight and sound, Gernsback's mechanical model was low tech compared to Philo Farnsworth's or Vladimir Zworykin's electronic formats that were much closer to the system used in the eventual standardization of television. Nonetheless, the broadcasts by Gernsback emphasize his impact on broadcasting in the 1920s. Unfortunately, in addition to the problems of reduced advertising support within *Radio News*, Stashower (1990) claims it was the insistence on expensive television experiments that cost Gernsback his first publishing empire. Being less attentive to the business side, he was as surprised as everyone else when he went broke in February 1929, and a competitor used a legal loophole to force his Experimenter Publishing Company into bankruptcy. By April, *Radio News* along with *Amazing Stories* were lost in the bankruptcy. But within 2 months of leaving those publications, he had started a new company with the magazines *Radio Craft, Science Wonder Stories,* and *Air Wonder Stories.*

## PROMOTING PUBLIC INVOLVEMENT

In addition to inspiring invention and innovation through his publications, Gernsback contributed to the public's involvement in the medium. In 1915, he organized the Radio League of America (Douglas, 1987). Because of his impact in persuading people to be involved in radio, Gernsback was contacted in 1917 by the U.S. government. During World War I, "Uncle Sam, it turned out, needed the amateurs, and launched a campaign through radio clubs and the press to persuade qualified amateurs to enlist as soon as possible. Telegrams went out to the ARRL, to Hugo Gernsback, to editors of technical journals, urging the amateurs to join up" (Douglas, 1987, p. 298).

As a writer, not only did Gernsback contribute editorials and articles in his radio magazines, but he also wrote other works significant to radio. In 1922, for example, his book *Radio for All* was published. In *Radio for All,* Gernsback covered general physics principles of radio, how to read a radio diagram, the Radio Act of 1912, and much more that would initiate the beginner to the field (Gernsback, 1922). Beginning in 1930, Gernsback was editor of a three-volume series called the *Official Radio Service Manual* that had a complete directory of all commercial wiring diagrams of receivers. Thus Gernsback's influence in the promotion of early radio was accentuated through publications beyond his serials.

## CONCLUSION

Hugo Gernsback was a key promoter of and motivating force in the growth of early radio through his contributions in the radio press. *Radio News* and the other magazines under Gernsback's editorship impacted legislation, experimentation, and vision in the field. *Radio News* played a key role in the popularization and dissemination of radio information in the 1920s, making the hobby more accessible to those without specialized knowledge. In fact, it was the maturing of the radio industry that the magazine successfully promoted, along with Gernsback's expensive experimentation, that eventually caused the Experimenter Publishing Company to fail.

As a key promoter, Gernsback was encouraging the tinkerer and hobbyist to get involved in radio. He created at least two hobbyist organizations, he wrote books to educate the beginner, and he included down-to-earth articles for the uninitiated in his radio magazines. He championed the radio masses, chastising the in crowd for sneering at the rookie and promoting regulation giving the amateur larger use of the electromagnetic spectrum.

As the initiator of the radio press, Gernsback's formula for audience appeal included accurate technical news and designs that at times both predicted and enabled the future developments in the field. Entertainment, influential editorials, and companion broadcast outlets that experimented with new developments were other tools.

Gernsback campaigned for certain regulations and modes of behavior under which radio hobbyists and broadcasters could and should operate. His editorials warning pranksters to behave and his ability to construct and promote the basic tenets of the Radio Act of 1912 are examples of his influence in this area.

Because he had the largest audience, he was clearly one of the most influential figures in promoting radio inventions, innovations, and involvement. The regular use of diagrams and pictures of new or improved pieces of radio technology gave readers the tools to adopt and then innovate beyond what others had done. Some of these drawings were for devices he had dreamed up but not invented or patented. The personal satisfaction he received from encouraging invention perhaps motivated his increased emphasis on science fiction publishing and decreased publishing in the specific field of radio after the 1929 bankruptcy. Science fiction allowed him to encourage innovation even more broadly.

Finally, encouraging invention led Gernsback to value scientific excellence. He published the works of highly regarded experts in radio and electronics, and critiqued and criticized scientific inventions that he felt were flawed or needed improvement. This striving for scientific excellence was probably the chief factor in proving so many of Gernsback's predictions to be prophetic, first in the radio and electronic fields and later in his prognostications about travel to the moon.

Gernsback is an important figure whom mass communication historians need to investigate further. Certainly his influence on specific inventors and regulatory decisions are two areas that cry for further research. Gernsback's other radio magazines could also be analyzed, and a systematic analysis of *Radio News* would go much farther than evaluating its revelations about Gernsback himself. The German television magazine *Fernsehen* is the only early broadcasting publication to receive a systematic analysis to date (Lange 2002). The wealth of information contained in radio magazines awaits as an important resource for the radio historian.

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**Notes**

[1] That he is only a footnote is evidenced by the fact that his only mention in Barnouw's (1966) seminal history of broadcasting is as the owner of the Electro-Importing Company.

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