

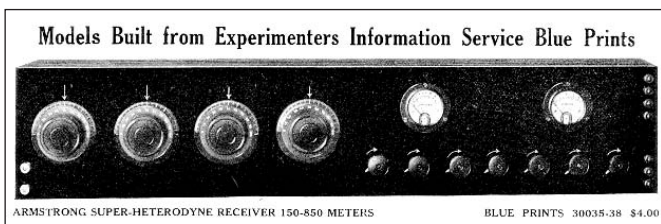
A JUDGE'S DECISION "UNLOCKS" THE SUPERHETERODYNE CIRCUIT

In the year 1918, prolific radio inventor Edwin Howard Armstrong was stationed in Paris with the Army Signal Corps. During this time, expanding on one of his earlier theories, he developed a way to substantially amplify an incoming high frequency signal by first changing it to a lower frequency. He called the principle "Super Heterodyning."

By 1922 he and Harry Houck, who had served under Armstrong in Paris, had made many improvements to the circuit, including reducing the tube count. The equipment was shown to RCA's David Sarnoff in February 1923. Sarnoff immediately stopped all development of sets being readied for the following Christmas season, and had his engineers begin working on radio models incorporating the new circuit.

Sarnoff also gathered together all other RCA patents that pertained in any way to the superheterodyne. He wanted to be ready to bring suit against the patent infringers who were sure to emerge once the new Radiola superheterodyne models were introduced. But the engineering de-

partment was not up to the job, and Armstrong and Houck had to be called in to complete the development of the new line. The RCA superheterodynes weren't brought to market until March 1924, when the lawsuits began immediately.



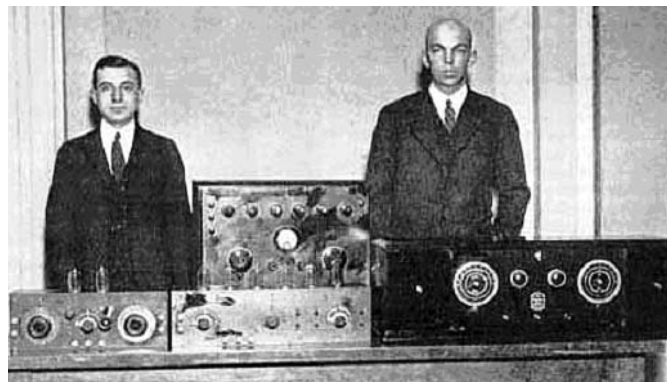
Experimenter's Information Service ad for "Armstrong Super-Heterodyne" plans. From Wireless Age, July, 1922.

Suits were initiated against numerous superhet manufacturers, most notably Charles Leutz and his Experimental Information Service. Some believe that Leutz was the scapegoat for these litigations because of his very frank advertising of the Armstrong-invented circuit.

The judge's opinion was that all manufactured, partly manufactured, and kit versions of the circuit, if not licensed by RCA, infringed on RCA's patents. This could have been a devastating setback for the widespread adoption of the

circuit. But the last moment, the Judge would not allow a clear monopoly for RCA, a company already being publicly accused of anti-trust.

In a 1925 decision, he added a loophole. Kit versions of superheterodyne radios could be sold license-free to "experimenters and amateurs," although it was not legal to market pre-manufactured, "knocked down" radios. Without that seemingly tiny loop-

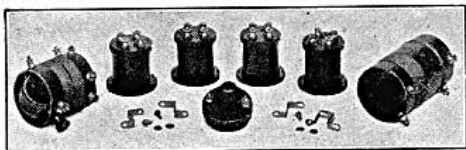


Harry Houck (left) and Edwin Armstrong. From Radio News, May, 1924

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Welty superheterodyne kit offer. From Radio World Illustrated, October 10, 1925.

hole, the Radio Corporation of America, with its dominant patent position, would have been able to inhibit the proliferation of the powerful new circuit. But since the general public knew little about the new fad called "radio," it didn't take long for the young radio industry to realize that the judge's "experimenters and amateurs" must be none other than "John Q. Public!"

Companies not allowed to build and sell manufactured superheterodyne radios began advertising their kits to the public. New kit manufacturers sprang up all over the country. Radio parts houses bundled kits with everything necessary to build a complete radio, including the cabinet. These kits were sold for years by the thousands without litigation by RCA. Schematics were published in newspapers and magazines of the day. Construction articles appeared everywhere. Those daring enough to build the new circuit bragged about the sensitivity and power of their radios.

A few manufacturers built and sold completed super-

radio shops across the country began to assemble kits using additional parts off their own shelves. Many engraved a private brand name on the front panel. This is why a collector might find a "Berry" using a Receptrad kit or a "Long S-8" with Remler intermediate frequency transformers. Countless thousands of these locally built, cross-named, radios reached the public.

By 1926, custom set builders across the country were being solicited by national companies to construct the superheterodynes for resale even though sales were technically limited to

heterodynes despite the court order. When companies like Cleveland's Mazda Radio advertised such radios, the word "superheterodyne" was never mentioned. Technically, the intermediate frequency amplifier in a superheterodyne is a fixed tuned-radio-frequency amplifier. So the radios were sometimes described loosely as a "TRFs." Needless to say, these companies ran serious risks, but there appears to be no indication any were prosecuted.

Not long after the legal judgment was made public, individual

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Dept. K-9—4513 RAVENSWOOD AVENUE CHICAGO, ILLINOIS

Solicitation for superheterodyne set builders. From Radio Listener's Guide, September, 1926.

experimenters and amateurs. Maybe RCA didn't believe that market was much of a threat but, within a couple of years, it had become a major business. However, by that time, RCA was getting ready to defend against anti-trust charges brought by the federal government. It couldn't very well turn around and sue the custom builders, thereby hurting its own case.

As time went on, with rapid changes in radio technology, retail outlets regularly had to offer massive sell-offs of "last year's models" at deep discounts to the public. Hundreds of companies went out of business due to over-production and changes in the public's interests. Not a problem for the companies making superhet kits. Last year's kit could be updated, at minimal cost, with a new schematic and a few new parts. There were no leftover models or out-of-date designs

to sell off.

Dramatic changes in retailing the superheterodyne occurred by late 1928. Taking advantage of RCA's anti-trust plight, national companies began advertising their sets as completely built, with the exception of only a couple of connections. It was stressed that finishing these radios required only a few minutes' time and no soldering. And, by mid-1929, completely wired, ready-to-play superhets were available. RCA's hands were tied by the lengthy anti-trust trial.

Over 700 brands, models, and variations of the superheterodyne have been documented from 1923 to 1930! What started as a "slam-dunk" patent suit by RCA created an explosion in the development and sales of the superheterodyne circuit that made it the most popular in the world to this day. 

THE AWA REVIEW, VOLUME 17

Work on Volume 17 of the *AWA Review* is progressing, and barring last minute production problems, it will be available for purchase at the AWA Annual Conference in August. Volume 17 is expected to contain the following five articles:

"The Regency TR-1: 50 Years Later," by Paul Farmer (2004 is the 50th anniversary of the introduction of the first consumer transistor radio, the Regency TR-1, in 1954. Hence this comprehensive article about the TR-1 is extremely timely.)

"A History of the Kodel Radio Corporation" by John Leming, Jr. (Kodel is an important 1920s radio company, yet very little of its history has been documented. This fascinating article about Kodel and its founder, Clarence Ogden, addresses that need. Author John Leming has interviewed members of the Ogden family to uncover new information.)

"Broadcast Receiver Manufacture by General Electric and Westinghouse in the First Decade of RCA" by Robert Murray (Robert Murray has done extensive research on what occurred behind the scenes when GE and Westinghouse were producing RCA radios during the 1920s. RCA collectors and those interested in radio developments at GE and Westinghouse will find this article especially helpful.

"Evolution of the Submarine Telegraph With an Extensive Bibliography" by Bill

Holly (Bill Holly provides a detailed chronology documenting key developments in submarine cable technology, and has prepared what is probably the most extensive listing of books and articles about submarine cables ever published.)

"The Evolution of the National HRO by Barry Williams" (HRO receivers have a well-deserved reputation for their innovative designs, and are particularly popular with collectors of communications receivers. Williams has researched and documented thoroughly the subtle differences among the many HRO models. If you collect HROs, this article is a "must have!")

Look for *AWA Review* Volume 17, or an announcement of ordering information, at the August meet! The October issue of *The OTB* will also carry ordering information.

The authors of the articles noted above (or at least those who are able to attend) will be at the social hour prior to the Annual Conference Banquet to autograph copies of the *Review*. *Review* Editor Brian Belanger and *OTB* Editor Marc Ellis will also be available during the social hour to meet with prospective authors of articles for the *Review* and *The OTB*. If you are thinking of writing an article for either publication, take this opportunity to meet with Brian or Marc to learn about what is involved and to have your questions answered. 