

# The Men who made Radio

BOOK REVIEW of

## EMPIRE OF THE AIR

-- THE MEN WHO MADE RADIO

By Thomas S. W. Lewis

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Lee deForest, Edwin Howard Armstrong and David Sarnoff made radio what it was for its first 50 years, what it is today, and what it will become. Tom Lewis pulls together every thread to weave the fullest tapestry of early days of this art and industry. He spares none of the three any of their faults, while we and he marvel at RADIO, their accomplishment.

Our perspective is jaundiced by the technological miracle we live. We pick up a telephone to talk to anyone, anywhere in the world, and if its 3 AM we send them a FAX. We watch on live TV the history of the world unfold on CNN. The cable and the VCR provide rich choice to the most jaded tastes. All of this may well be just images cast on the wall of the cave, as Plato said, but we love it and we pay for it.

A hundred years ago, any of this wasn't even a gleam in the eye of Heinrich Hertz, proving up Maxwell's equations with sparks and loops. Ninety years ago, Marconi could telegraph wirelessly, then transatlantically. Within the decade,

Vladimir Poulsen first, then Fessenden, then deForest and others could send the voice (and music) of man through the ether. (Lewis oddly does not emphasize that it was deForest in 1908 who first conceived of radio broadcasting as we know it today, as he was the first to implement his conception, in New York, followed the next year by Doc Herrold in San Jose).

In another decade, the twenties, radio broadcasting changed the world forever. Radio (and then its idiot cousin, TV) made nations one nation, and the world one world, for better or worse. There have certainly been many messy details to work out, but radio and television have made us all into one network, rather than competing hierarchies of country, church and state.

Lee deForest invented in 1906 the triode vacuum tube that could amplify and oscillate (disguising his debt to Flemming's valve). DeForest's device, probably the most important single invention of the 20th century, made it all possible. Howard Armstrong, for thirty years and more, invented or developed the electronic circuits that put the vacuum tube to work, the regenerator and the superheterodyne, and frequency modulation. David Sarnoff guided the company that made these novelties into an industry: RCA.

Radio Corporation of America was a monopoly and a patent pool and known as The Octopus. But it brought radio to the millions. Sarnoff thought up the "radio music box" for every home in 1916 and put it into the market after the First World War. The market could not get enough of them. Sarnoff then saw television coming and made it happen too, inaugurating regular broadcasting of the Farnsworth/Zworkin electronic system with the 1939 World's Fair. Sarnoff then foresaw all-electronic color television, and forced the FCC to reverse its approval of

CBS's mechanical system. Sarnoff's was a hat-trick unequalled in American industry. Sarnoff did not invent but he made the inventions into products people would buy by the millions.

Tom Lewis tells this story with faithful attention to the truth. Lee deForest knew the research money and money for his fancy lifestyle was raised by charlatans from "suckers." Armstrong could not take the pressure of litigation and killed himself. Sarnoff destroyed the giant company he built, by putting an incompetent son at its helm. Yet these men discovered and created a new world, as surely as Columbus. DeForest said: "I discovered an Invisible Empire of the Air, intangible, yet solid as granite."

"The Radio," Lewis points out, with a quote from E.B. White, was for people of the 20s and 30s, "...a pervading and somewhat Godlike presence which has come into their lives." Americans in the depth of the depression "would sooner sell their refrigerators, bathtubs, telephones and beds to make rent payments than part with the box that connected them with the world." [page 231].

Another reviewer is right about this book: "The real story of the brilliant, difficult, driven men who developed radio -- and transformed American life -- is more compelling than any broadcast drama, and Tom Lewis tells it with a scholar's insight and a playwright's skill." (Geoffrey C. Ward, on the dustjacket). Lewis is perhaps too hard on Sarnoff, whose real sin was vanity, for few else had as much to be vain about. He is perhaps too kind to Armstrong, whose "inventions" more thorough research (*vide* OTB) will cast doubt upon: Armstrong perhaps developed the ideas of others for regeneration and the superhet. Armstrong did, nonetheless, promote the major technical advances of the art, especially FM, selflessly and at the ultimate cost to himself.

DeForest, too, deserves some debunking, if only because he paints such a rosy picture of himself in his autobiography. Still, Lewis finds him more of a fraud than deForest's intentions may warrant, and the debunking was anticipated by a 1942 magazine article. DeForest was, after all, acquitted of fraud charges, and when he put his little grid in Flemming's valve, man's technology took a quantum leap. These three driven designers of the modern world deserve Lewis' honesty, and his daunting scholarship, and his dramatic presentation. His errors are minor and technical. Lewis shows us how these men of radio deserve our admiration as well. This is as good a book as a radioman can read. ##