

Audio Recording Before Magnetic Tape (McLeod)

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The question of how all these glorious radio broadcasts were recorded in the years before Germany invented magnetic tape recording has been bedevilling my poor brain for months now. As I read these newsletters, I come across brief references to transcription disks. I've never heard of these before. What do these disks look like and what were they made of? They were essentially phonograph records, but their size and specific appearance could vary. Some were pressed from shellac or vinyl in the manner of an ordinary record - the only real difference being that they were usually 16 inches in diameter. Others were either cut or embossed directly into the surface of the disc - some of these were bare aluminum in which the groove was embossed by a diamond stylus in a heavy recording head, others were aluminum or glass discs coated with cellulose nitrate lacquer, into which the grooves would be cut. These could be any standard size from six to <http://members.aol.com/ieffl070/am4.html>  
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sixteen inches in diameter, and could be recorded at 33 1/3 or 78 rpm.  
Who invented them and where and when?

Well, Thomas Edison invented the basic principle of phonograph recording and it was elaborated upon by a variety of technicians during the early twenties, replacing acoustic recording processes (powered only by your lungs) with an electrically amplified system. The 16-inch format used for many transcriptions was an outgrowth of the basic system developed by Western Electric for the Vitaphone sound motion picture process in 1925.

A simplified timeline:

- 1913-14: Earliest surviving recordings of radio signals made by radio amateur Charles Apgar using modified cylinder phonograph.
- 1920-25: Development of commercial electrical recording systems.
- 1924-26: Development of 16" slow-speed disc by Western Electric for Vitaphone process. (The Edison company was working on a slow-speed system of its own during the late twenties but it was never commercially introduced)

- Late 1920s: Embossed uncoated aluminum disc recording system evolves from earlier embossed-metal disc systems. Speak-O-Phone Corporation is an early and influential pioneer in the development of this system with a chain of franchised recording studios across the US.
- 1928: Correll and Gosden introduce recorded program syndication by distributing "Amos 'n' Andy" on 12" shellac 78rpm discs. National Radio Advertising Company begins distributing first sponsored pre-recorded features at end of year.
- 1929: 16-inch shellac discs introduced for syndication, probably by Radio Digest Bureau of Broadcasting, using pressings manufactured by the Columbia Phonograph Corporation's Sound-On-Disc Division.
- 1929-35: First Golden Age of Syndication - dozens of companies enter the business of distributing recorded programs, 78rpm discs give way to large size slow-speed discs during early thirties.
- 1930-35: Uncoated aluminum system in wide use.
- 1934: Presto Recording Corporation introduces coated lacquer discs in the US. Coated discs quickly supplant uncoated, although the bare-aluminum system remains in use at least into the early 1940s.
- 1941: Glass-based discs introduced as wartime expedient. Many older coated-aluminum discs are recycled during the war years by having the lacquer boiled off and a new coating applied. New manufacture of aluminum-based discs probably resumes in early 1945. There's a lot more to the story than just this bare-bones timeline, and I urge anyone interested in the whole, detailed story to check out Mike Biel's 1977 dissertation "Making And Use Of Recordings In Broadcasting Before 1936," available from University Microforms and Nauck's Vintage Records. Not inexpensive, but very interesting reading!

Also, does anyone know anything about using wire as a recording medium? My Audio instructor made an offhand reference to it in one of his lectures, and the villains in a Green Hornet episode I've heard use wire recording in their villainous scheme. Systems for magnetically recording on metal wire or metal tape go back to the early years of the 20th century, and were in broadcast use overseas as early as 1930 (the BBC got a lot of use out of its "Blattnerphone" for delayed broadcasts thruout the thirties.) Here in the US, though, wire recorders were popular on the home market during the post war era. These machines used a very, very fine-gauge steel wire which passed thru the poles of a magnetic recording head. The wire was wound on small spools much like the spools that solder comes on -

and could produce a very fine recording when used by a skilled operator. But it was a very, very  
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difficult system to work with. I own a typical postwar "Webcor" wire recorder, and it's by no means as easy to use as reel-to-reel tape. Threading the wire is a very delicate process, and given the fineness of the wire breaks are common - and when it breaks, the wire can fly about in all directions, leading to a helpless tangle. It's easy to see why amateurs tended to lose patience with this system!

I'm hoping some of our more technical experts can help me with a simple question. Would a 30-minute transcription disk in 1945 / 1m asking this in relation to a fellow writer's historical novel.

It could have been - with fifteen minutes on each side. During the mid-show commercial break the engineer would turn the disc over and cue it up to the second part of the show. However, it was also common for a half-hour syndicated show to be spread over two discs, with part one and two of episode "1" on the "A" side of the discs, and part one and two of episode "2" on the "B" sides. This

system allowed the use of dual turntables and eliminated the mid-show-flip. But it could also be a problem if one of the discs was cracked or broken - causing the loss of two programs instead of just one.

Elizabeth  
(who hates finding discs containing two "part one" sides and no "part two.")

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