The history of 78 RPM recordings

Music Cataloging at Yale **[1] ?** Sound recording cataloging **[2]**

This is a brief guide to aid in cataloging

Sources:
Mudge, S., D.J. Hoek. *Describing jazz, blues, and popular 78 RPM sound recordings: suggestions and guidelines.* Cataloging & Classification Quarterly, vo. 29, no. 3, 2001, p. 21-48.
Bill's 78rpm beginner's page [3]; Explanation of side coupling for 78rpm sets [4]; *Grove Music Online*; A history of vinyl [5]; *Wikipedia*; Recording Industry Association of America [6] (RIAA) website

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Any flat disc record, made between about 1898 and the late 1950s and playing at a speed around 78 revolutions per minute is called a "78" by collectors. The materials of which discs were made and with which they were coated were also various; shellac eventually became the commonest material. Generally 78s are made of a brittle material which uses a shellac resin (thus their other name is shellac records). During and after World War II when shellac supplies were extremely limited, some 78 rpm records were pressed in vinyl instead of shellac (wax), particularly the six-minute 12" 78 rpm records produced by V-Disc for distribution to US troops in World War II.

78s come in a variety of sizes, the most common being 10 inch (25 cm) and 12 inch (30 cm) diameter, and these were originally sold in either paper or card covers, generally with a circular cutout allowing the record label to be seen. Since most 78 rpm discs were issued in paper sleeves with no additional accompanying materials, relatively limited information is provided by the items themselves.

Earliest speeds of rotation varied widely, but by 1910 most records were recorded at about 78 to 80 rpm. In 1925, 78.26 rpm was chosen as a standard for motorized phonographs, because it was suitable for most existing records, and was easily achieved using a standard 3600-rpm motor and 46-tooth gear (78.26 = 3600/46). Thus these records became known as 78s (or "seventy-eights"). This term did not come into use until after World War II when a need developed to distinguish the 78 from other newer disc record formats. Earlier they were just called records, or when there was a need to distinguish them from cylinders, disc records.

The durations of 78 RPM recordings is about three to five minutes per side, depending on the disc size:
12": ca. four to five minutes
10": ca. three minutes

As late as the 1970s, some children's records were released at the 78 rpm speed.

The older 78 format continued to be mass produced alongside the newer formats into the 1950s, but had faded from the scene by 1955.

Recording techniques

Before 1925, all 78s were recorded by means of the artist singing or speaking into a horn, the power of their voice directly vibrating the recording stylus and thus cutting the wax of the master disc. Collectors call these discs "acoustic" recordings.

The acoustical era: 1877–1925

The earliest methods of sound recording are described as "acoustical" and employ only mechanical means for both recording and playback. The sounds to be preserved are directed into a large horn, which at its tapered end is connected to a cutting stylus. In response to the vibrations of air in the horn, the stylus cuts a spiral groove in the thick wax coating of a cylinder or disc, rotated steadily by means of a crank. The cutting process creates variations

in the groove analogous to the varying frequency and amplitude of the vibrations; the stylus moves up and down in "hill-and-dale" or "vertical cut" recording and from side to side in "lateral cut" recording.

Acoustical recording never yielded high fidelity, its dynamic range was limited.

[By the 1910s] flat discs were the predominant medium for sound recording.

Edison's Diamond Discs were available 1910 in 7, 10, 12, 14, 16, and 21 inch formats. They were played at around 78 rpm and contained up to 8 minutes of sound. The disc was made of an early plastic known as Amberol, which "gave it little surface noise and superb clarity, [but] was incompatible with any other system. It employed a vertical, rather than lateral cut, groove and could not be played on any other machine."

Recording and playing speeds ranged from 72 to 86 rpm before the standard settled at 78 (though Columbia, for example, issued 80 rpm discs for some time after 1920).

The electrical era: 1925–47

Electrical recording was first used in 1925. After about 1925, 78s were recorded by the artist singing or speaking into a microphone and amplifier which then cut the master record. This allowed a wider range of sound to be recorded. Records recorded by this process are called "electrical" recordings. Collectors can identify these discs by either by listening or by means of small marks in the record surface close to the label.

The first electrical recording was issued in 1925.

By around 1920 lateral cut recording was the norm; a less exacting technique than vertical cut, it produced a level of fidelity adequate to the standard of the equipment the general public could afford to buy.

The physical format of electrical recordings remained the same as that of the many acoustical ones utilizing the lateral cut technique.

The term "electrical recording" is normally used in contradistinction to "acoustical recording" (in the preceding era) and "magnetic tape recording" and "microgroove recording" (in the succeeding era) the term "electrical recording" is not customarily used after the introduction of magnetic tape in 1947.

In electrical recording the sounds to be preserved are gathered by a transducer (a microphone) and the vibrations converted into an analogously varying electrical signal, which is amplified and applied to another transducer (a stylus), which cuts a spiral groove in a waxed or (later) lacquered disc.

Hill-and-dale [vertical cut] recording:
A term applied to a sound-recording technique in which, in both recording and playback, the stylus moves up and down in the spiral groove on a cylinder or disc.

Vertical cut recording:
A term applied to a sound-recording technique that utilizes variations in the depth of the spiral groove on a cylinder or disc.

Lateral cut recording:
A term applied to a sound-recording technique in which, in both recording and playback, the stylus moves from side to side in the spiral groove on a disc.

78 RPM sets

Many 78 RPM sets, particularly electrical sets, were issued in up to three side couplings:
° Manual side
° Slide automatic
° Drop automatic

In a hypothetical set comprising four records, the alignment of the sides would have been:
° Manual: 1/2, 3/4, 5/6, 7/8

° Slide automatic: 1/5, 2/6, 3/7, 4/8
° Drop automatic: 1/8, 2/7, 3/6, 4/5

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