

# Analogue Sound

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## **On the Materiality of Audio-Visual Heritage**

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# Summary

- musical / music box
- phonautograph
- phonograph cylinder
- phonograph / gramophone record
- magnetic wire
- magnetic tape
- magnetic film

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# Musical / Music Box

- commercial medium for reproducing sound
- 9<sup>th</sup> century: hydropowered organ in Baghdad, Iraq
- from the early 13<sup>th</sup> century on in Flanders; then in many European countries
- produces musical notes by using a set of pins placed on a revolving cylinder or disc to pluck the tuned teeth of a steel comb

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# Phonautograph

- first scientific medium for recording sound
- patented in 1857
- for the study of acoustics, it could be used to visually measure the amplitude envelopes, waveforms and frequencies of speech and other sounds
- in 2008 their reproduction became possible

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## Phonograph Cylinder

- earliest commercial medium for recording and reproducing sound
- in 1877 by Thomas Edison – and his team!
- wax cylinders
- hard plastic cylinders
- very popular 1895–1915

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## Phonograph / Gramophone Record

- from 1880s on in the USA and in Germany
- from mechanical to electrical
- 1925 nominal speed standardised at 78 rpm; later also  $33\frac{1}{3}$  rpm and 45 rpm
- from shellac to vinyl
- from mono to stereo
- standard formats: 7", 10", 12" and 16"

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## Magnetic Wire

- first magnetic recording technology
- invented in 1898 by Valdemar Poulsen
- magnetic recording is made on a thin steel wire: in the 1930s diameter of 0.11 mm for music and 0.22 mm for speech (15 % Cr and 12 % Mn); later 0.09 mm (18 % Cr and 8 % Ni)

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## Magnetic Tape

- open reel, cassette, cartridge
- radio, television, video
- audio: 2", 1",  $\frac{1}{2}$ ",  $\frac{1}{4}$ "
- video: 2", 1",  $\frac{3}{4}$ ",  $\frac{1}{2}$ "

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# Magnetic Film

perforated like film:

- 35 mm
- 17.5 mm
- 16 mm
- 8 mm

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