

24-fps Was No Big Deal



Other Frame Rates

■ Rate

- Edison stated: 46
- Donisthorpe: 6-8
- silent-era shooting: ~16
- silent-era projection: ~21-27+

- TV: 25 & 30
 - 2:1 interlace
 - 29.97
- Showscan 60
- BBC/EBU/NHK 100-300
- 24p 24

■ Reason

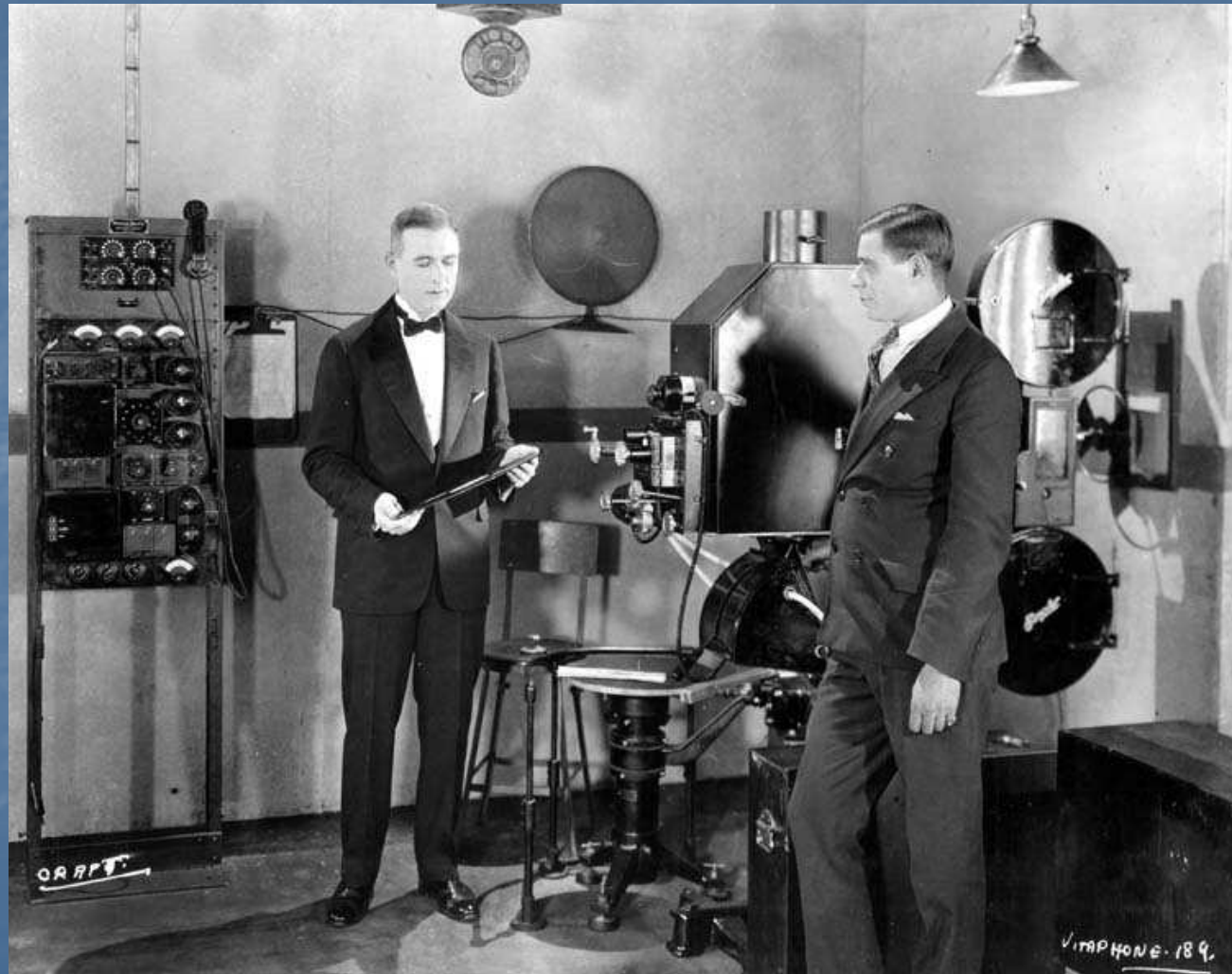
- thought to be perception
- thought to be perception
- between fusion & exposure/\$
- flicker & number of shows

- power frequency
 - flicker
 - sound-to-color beat frequency
- perceptual testing
- perceptual testing
- looks like shot on film

24-fps History

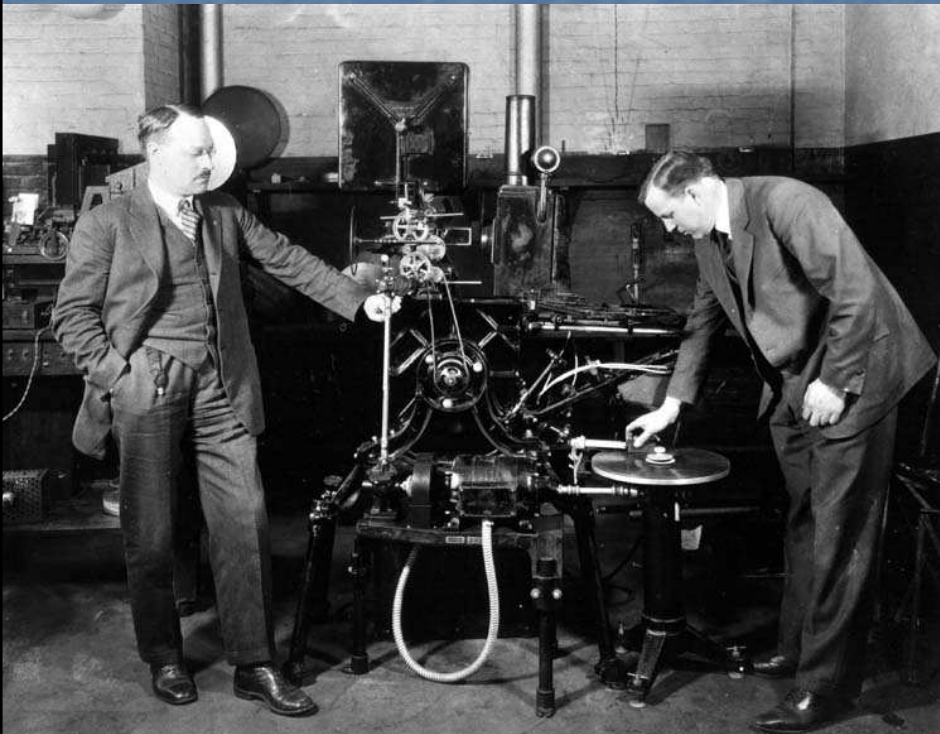
- Vitaphone
 - ***NOT*** for sound quality
- Fox-Case
- everyone else

Edward B. Craft holds a Vitaphone sound disk in a projection booth in a 1926 demo



Sound Quality Based on Disk Alone

- 16-inch, 33 $\frac{1}{3}$ rpm (1st time)
- Sponable-Case sound-on-film at lower frame rates

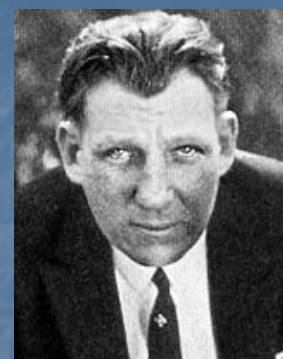


90'/min Chosen by Stanley Watkins

- Needed a single rate
- Asked chief WB projectionist Jack Kekaley about rates
 - Sam Warner & Vitaphone president Walter Rich in room



Watkins



Warner



Rich

- “He told us it went at 80 to 90'/min in the best first-run houses and in the small ones anything from 100' feet up, according to how many shows they wanted to get in during the day. After a little thought, we settled on 90' a minute as a reasonable compromise.”
- 90'/min=24-fps for 4-perf 35 mm

That's It

- No visual perception reason
- No aural perception reason
- No engineering reason
- Just a number...
- Used for about 88 years now

