

# Popmusikkens musikkteknologi

Instrumenter, medier og uttryksmuligheter i etterkrigstidens populærmusikk

# **Musikkteknologi og populærmusikken etter krigen:**

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**1. Nye instrumenter**

**2. Nye lydmedier**

**3. Produksjon og lydbilde framheves**

# 1. NYE INSTRUMENTER

- Nye utvidete instrument



- Nye elektroniske instrumenter



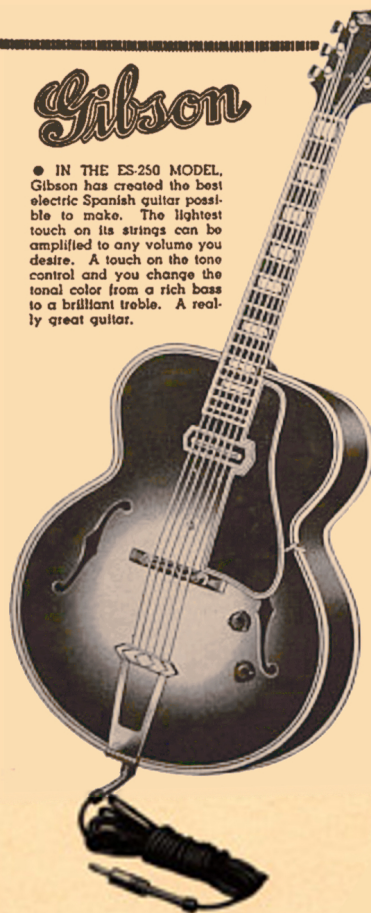
GIBSON:

ES-150

ES-250

**Gibson**

● IN THE ES-250 MODEL, Gibson has created the best electric Spanish guitar possible to make. The lightest touch on its strings can be amplified to any volume you desire. A touch on the tone control and you change the tonal color from a rich bass to a brilliant treble. A really great guitar.



### ES-150 MODEL

Grand auditorium body—carved spruce top—northern maple back and rim—mahogany neck and rosewood fingerboard—chocolate brown finish with golden sunburst—white ivoroid binding on top and bottom of body and fingerboard—ebony adjustable bridge—brown celluloid fingerrest bound with white ivoroid—individual nickel machine heads—nickel plated extension tailpiece—pearl inlays in fingerboard and peghead—side position dots—exclusive Gibson adjustable Truss Rod neck construction, and 19 frets. Entire tone generator unit built inside guitar body. Tone and volume controls conveniently placed for instant regulation.

Price (instrument and 15-foot cord) \$77.50

## New Electric Spanish Guitars ES-250 Model

Body size 17" wide and 21" long—Advanced size like the L-7 and L-5—curly maple back and rim—maple neck—spruce top—rosewood fingerboard—chocolate brown finish with golden sunburst shading on top and back—fingerboard and peghead inlaid with attractive pearl designs—white, black and white ivoroid binding on top of body and fingerrest—white ivoroid binding on bottom of body and fingerboard—elevated brown celluloid fingerrest—side position marks—rosewood adjustable bridge—new Kluson "Seal-Fast" nickel individual machine heads—modern nickel extension tailpiece—19 frets—Exclusive Gibson Adjustable Truss Rod neck construction.

This instrument has built-in individually balanced tone generator unit bound with white, black and white celluloid. It has separate chrome plated pole pieces for each string, giving maximum in tonal reproduction. Tone and volume controls are on one side. The extra strong shielded cord is 15 feet. Plugs and spring protectors are shielded nickel.

PRICE (instrument and cord) \$150.00

CASE: No. 600—Heavy faultless construction, covered with brown waterproof aeroplane cloth to match amplifier—sturdy luggage catches—American Heavy silk plush lining. Price: \$28.00.

ZIPPER CASE COVER: Tan waterproof zipper cover with leather bindings and metal bumpers. \$15.00.

AMPLIFIERS  
The ES-250 and ES-150 instruments are to be used with EH-185 or EH-150 Amplifiers.

### Electric Tenor Guitar

Style EST-150. Same as ES-150 but with Four String Tenor Neck and Fingerboard. 15 foot cord. \$77.50.

CASE: No. 534—\$16.50.

ES-150 CASE: No. 534—Aeroplane Cloth covering—heavy faultless construction—purple flannel lining. \$16.50. ZIPPER CASE COVER: Tan zipper waterproof cover—leather bindings—metal bumpers. \$15.00.

ES-150 Illustrated  
with EH-185 Amplifier



# Solid-body el-gitar/bass

Rickenbacker Frying Pan - Hawaii (1931)



- Mindre feedback => muliggjør høyere volum
- Lavere strenger - lettere å spille på
- Mer sustain



Fender Broadcaster (1950)

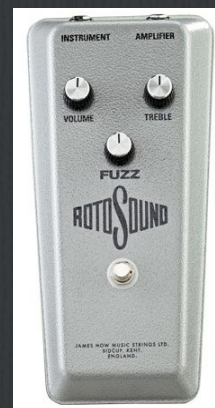


Gibson Les Paul (1952)



Fender Precision Bass (1951)

# Et fleksibelt vidt instrument



Fuzz/forvrengning

Tremolo

Wah-wah

Ekko

Romklang



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**En hver musikkteknologi både virker på sine brukere og er kontinuerlig påvirket av dem. [teknologiene] har en bestemt bruk som er en del av hvordan de er designet, og denne blir fulgt av brukerne, men samtidig underminerer, legger til og modifierer [brukerne] gjennom sin praksis bruken i en uendelig prosess**

**Timothy Taylor, 2001, *Strange Sounds***

# Den tidlige synthesizeren

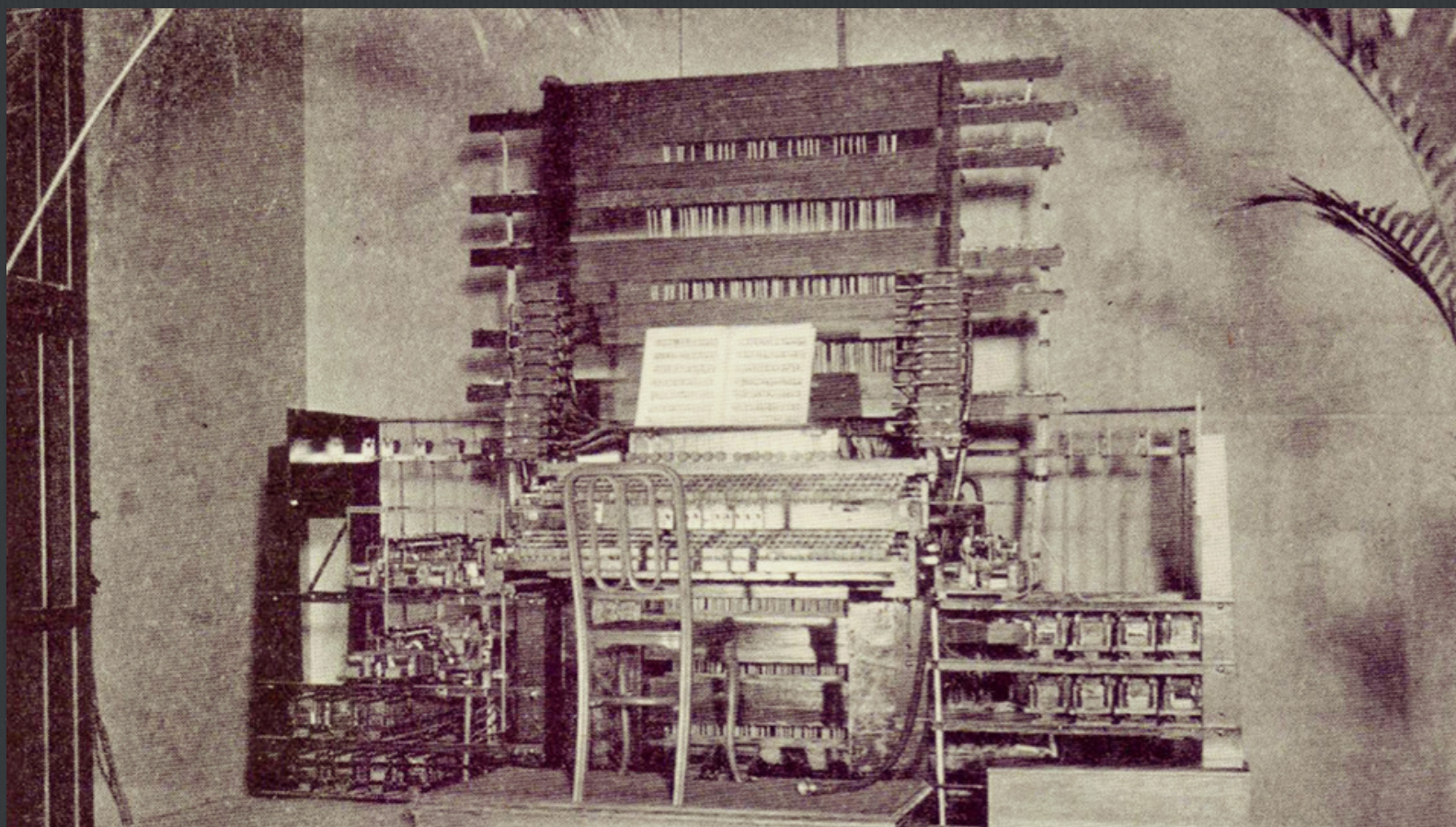
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- ❑ **RCA Synthesizer (1955)**
- ❑ **Moog (1965)**
- ❑ **Buchla (1964)**
- ❑ **Transistorbasert**
- ❑ **Modulær**
- ❑ **Spenningsstyring**

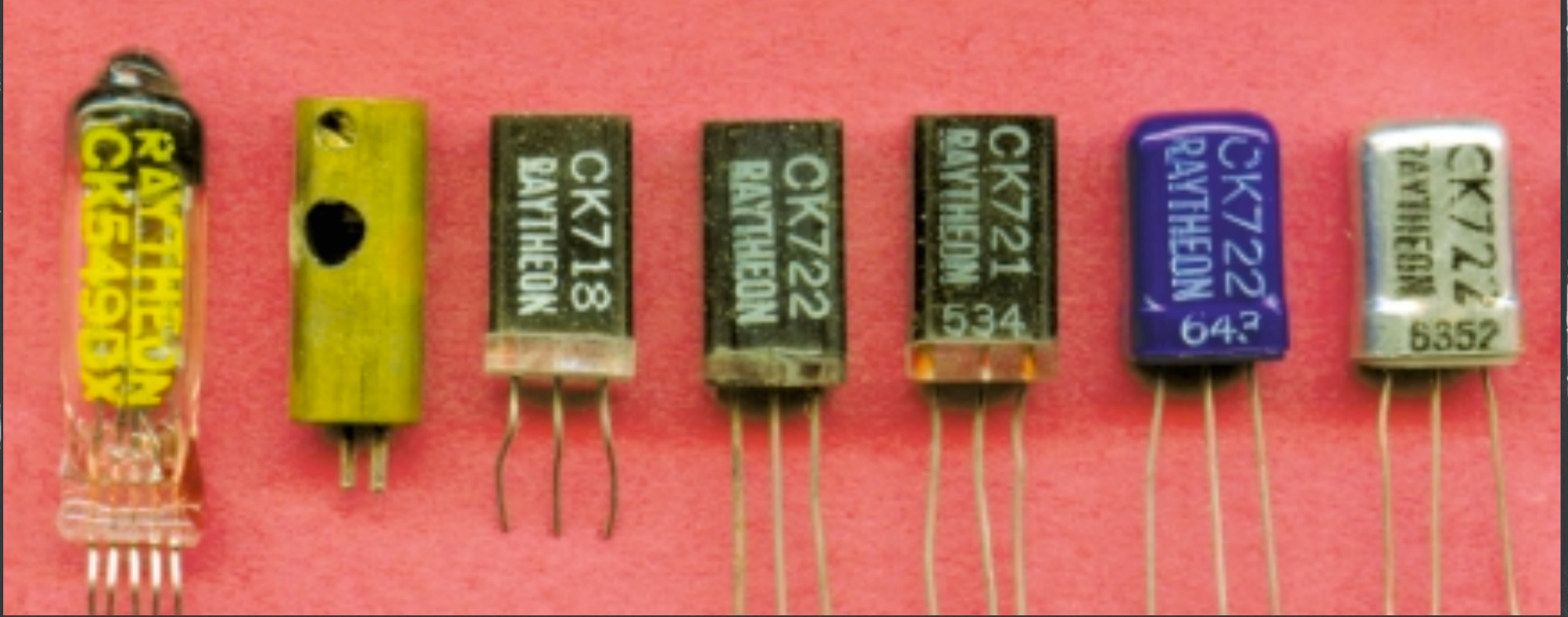
# Bakgrunn: Telharmonium

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# RCA «Synthesizer»





# Ulike moduler....



VCO: oscillator



LFO: lavfrekvent  
oscillator



VCF: filter

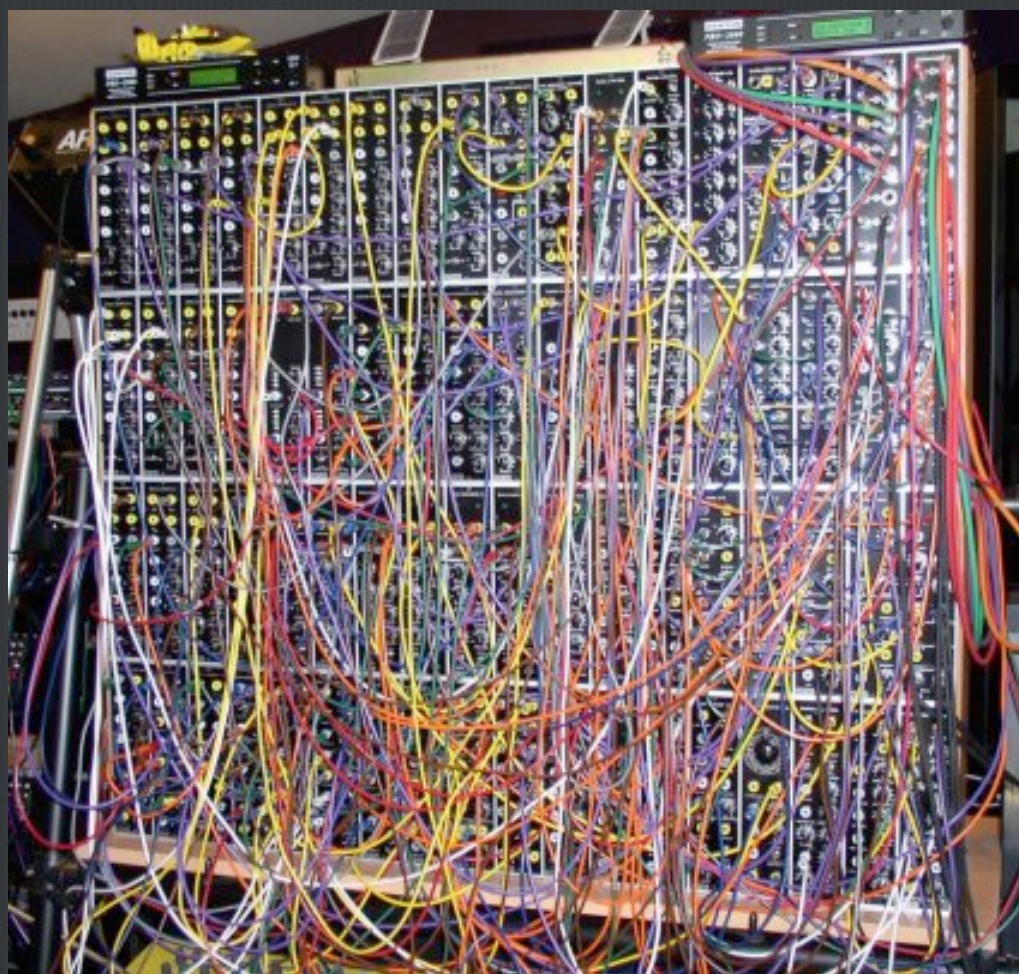


ENV: omhylningskurve



VCA: forsterker

**...kobles sammen til**

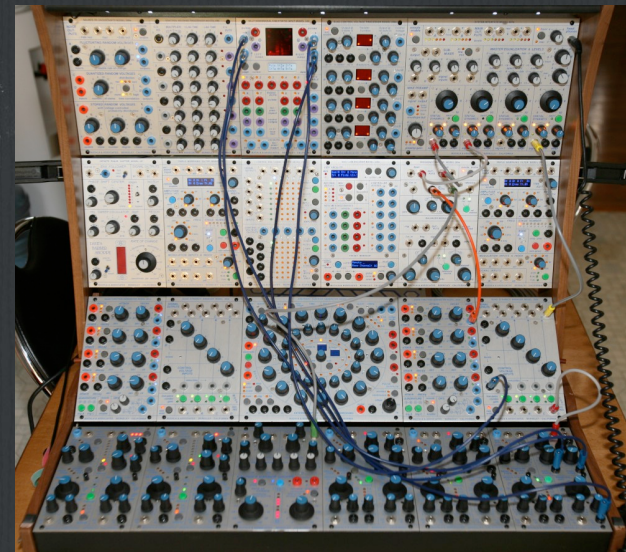


# Fra tolkningsmessig fleksibilitet...

Keyboard eller ikke...?



Moog



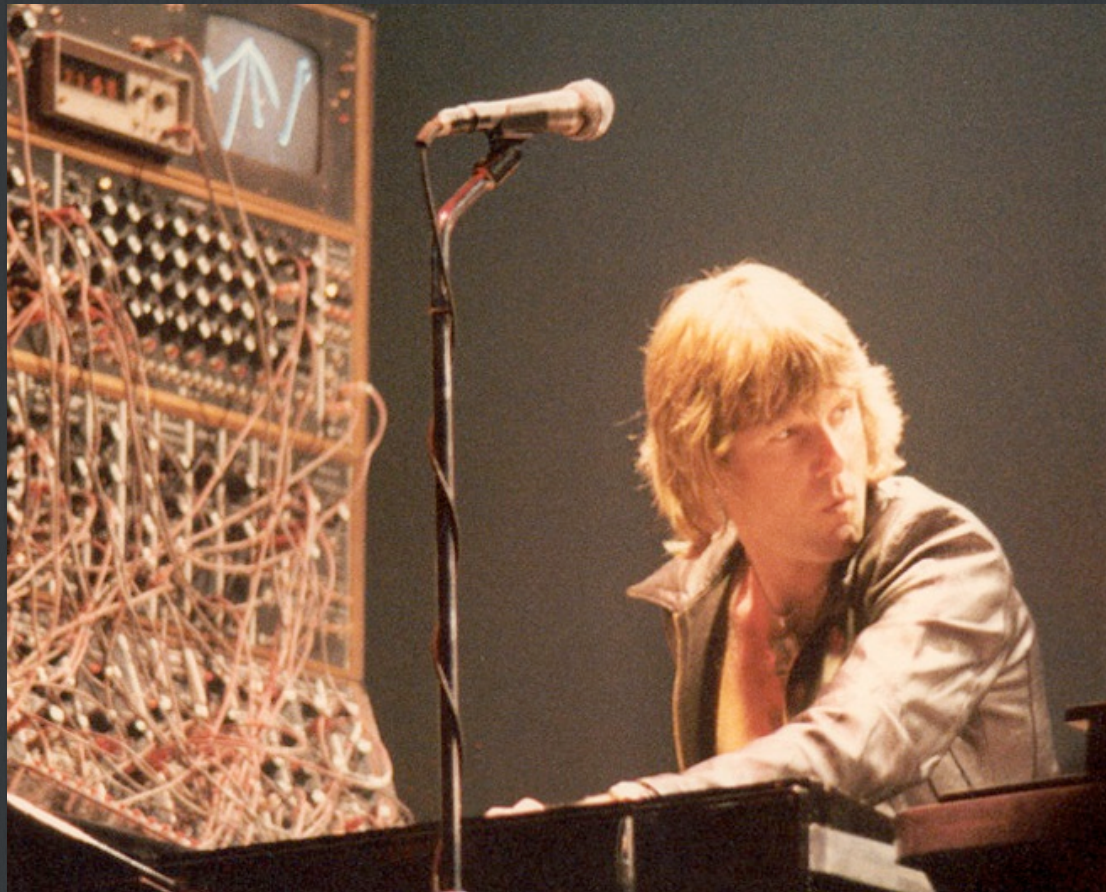
Buchla

# Walter Carlos



1968

Keith Emerson + Moog modular



Lucky Man (1970)

# ...til tolkningsmessig lukning



EMS VCS3 (1969)



Korg MiniKorg-700 (1973)



Omni Mk 1 (1975)



Minimoog (1970)



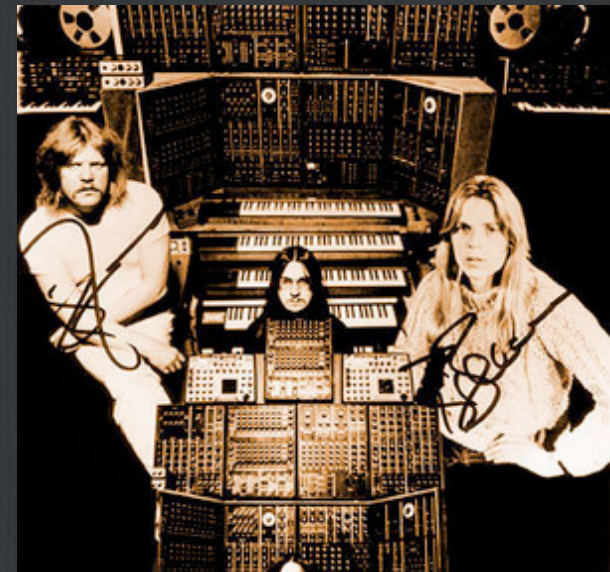
Yamaha SY-1 (1974)

# SYNTHESIZER ESEMBLER

Mother Mallard's Portable Masterpiece Company



Kraftwerk



Tangerine Dream

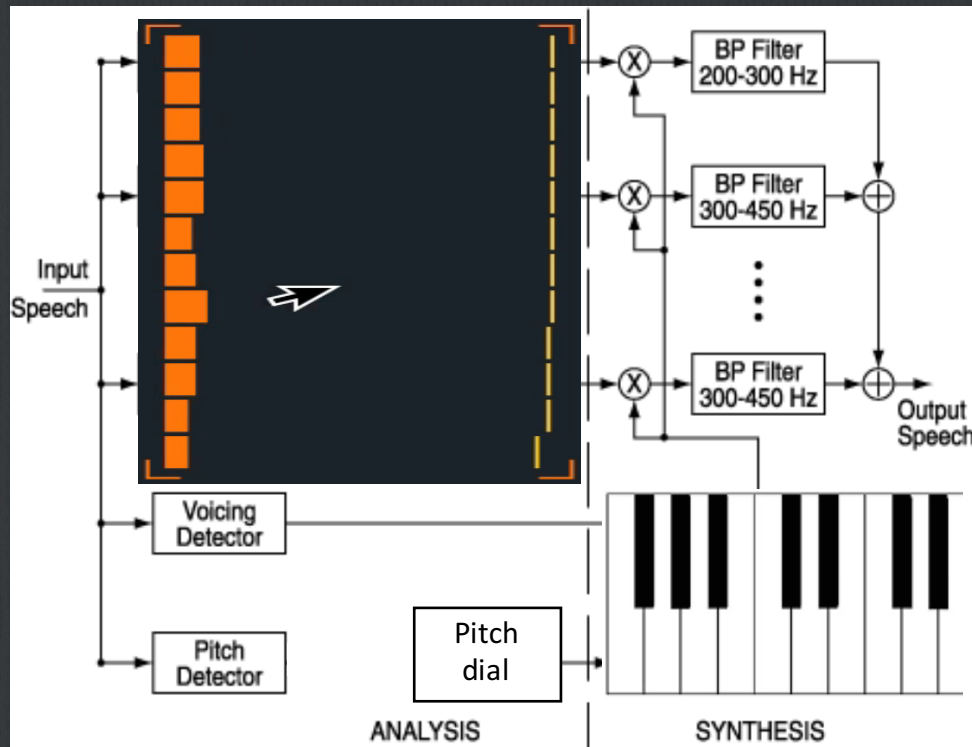




# Vokoder (1936)

Homer Dudley v/Bell Labs

Charles Vadersen og vocoderen



analyse    manipula    alternativt    syntese    signal



# Vokoderen på film



Peter Thomas, Soundtrack fra Raumpatrouille (1966)

# Vokoderen i musikk



Bruce Haack: Electric to me turn (1970)

# Vokoderen i musikk



**Kraftwerk: Autobahn (1974)**

# Vokoderen som kommersielt produkt

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**Korg VC-10 Vocoder (1978)**

## 2. NYE LYDMEDIER

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- Plate
- Magnetbånd



# 78-platene får konkurranse





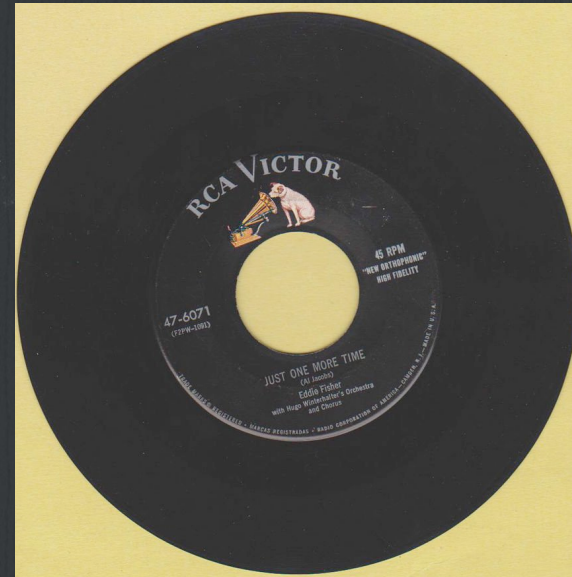
**MOTOROLA** AUTOMATIC RECORD CHANGER  
played 38,000 records, non-stop,

without cracking or chipping a single record. Motorola engineers give all the credit for this performance to their patented roller release which they claim insures smooth, noiseless, perfect-working action over an extended period of time. Galvin Mfg. Co., 4545 Augusta Blvd., Chicago, Ill.

# «War of the speeds»



1948



1949

# 3 speed



# LP-albumets gullalder

1966



1966



1967



# Magnetbånd



Spolebånd (reel-to-reel), hjemmemodell

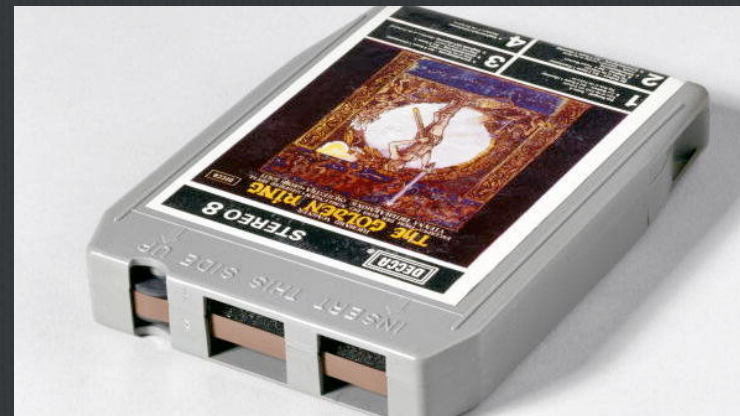


# Nye, lukkede format



**Compact Cassette (1963)**

**Stereo 8 (1964)**



# De nye båndformatene

- **Portabel**
- **Robust**
- **Avspilling/opptak**
- **Musikkopiering**
- **Mix-tapes**



**Musikk + bilkjøring = sant!**

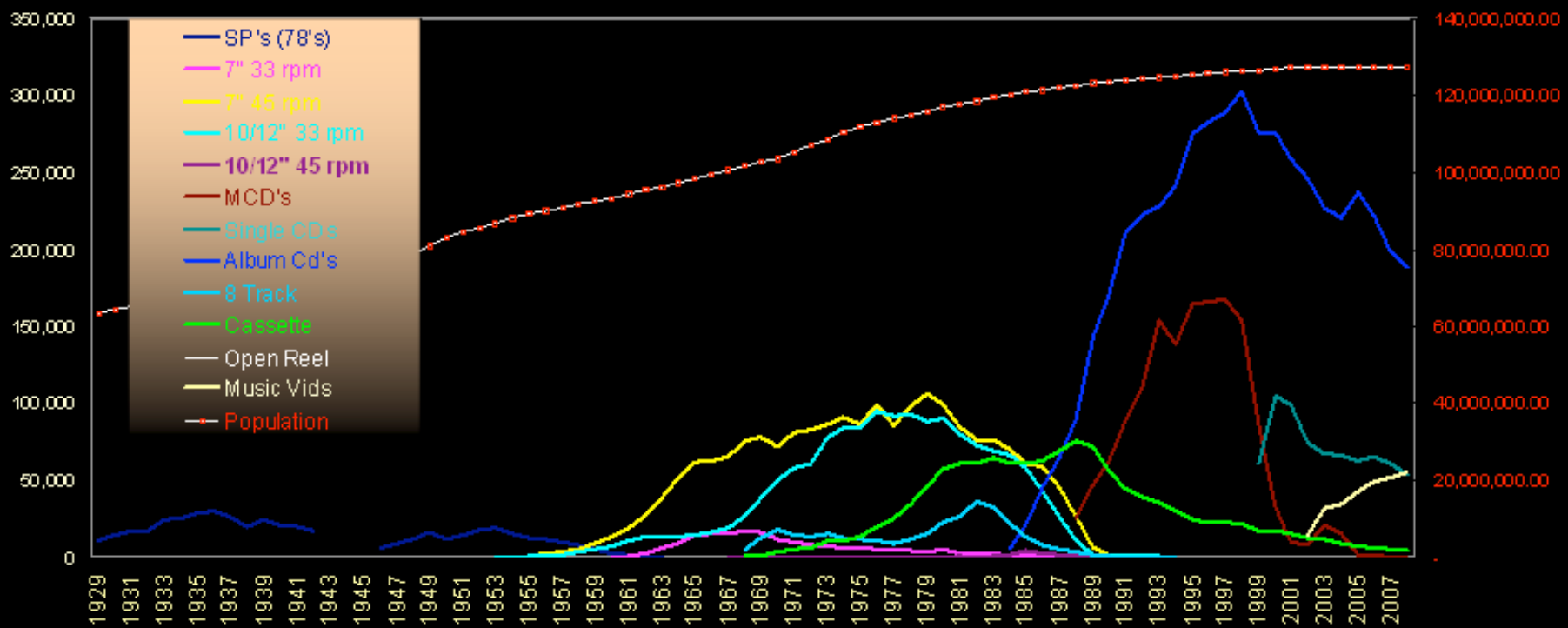
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## Format Change Long and Short Tails

Production Volumes ('000)

Population Japan



# **3. PRODUKSJON OG LYDBILDE**

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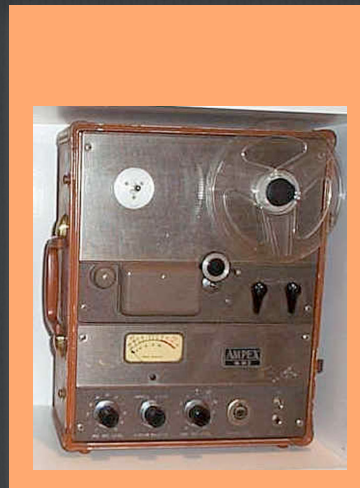
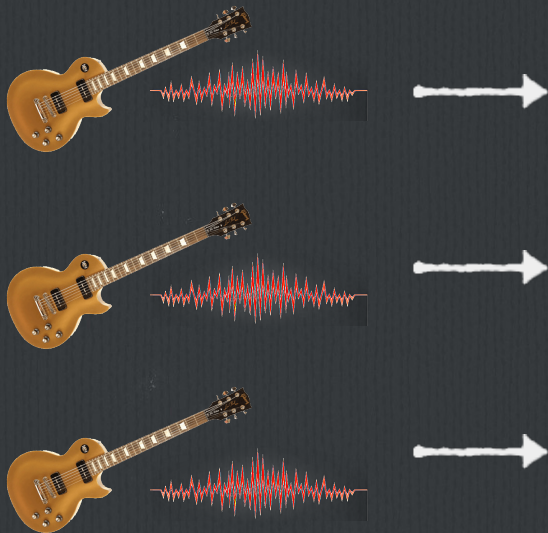
- **Flersporsopptak**
- **Manipulasjon**

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**«Those who are now in charge of production at the various recording companies tell me that to awaken popular interest in a record they've got to produce a new 'sound': an unusual combination of instruments or voices which record buyers haven't heard before. If you can do this, they say, you've got a chance to turn out a hit record. It doesn't matter what the material is like or how good the song is or what it's all about, how it's done, or how it's performed. It's just whether it features an unusual sound which hasn't been heard before.»**

**Bing Crosby and P.Martin, 1953**

# OVERDUBBING → «GJORT ER GJORT»

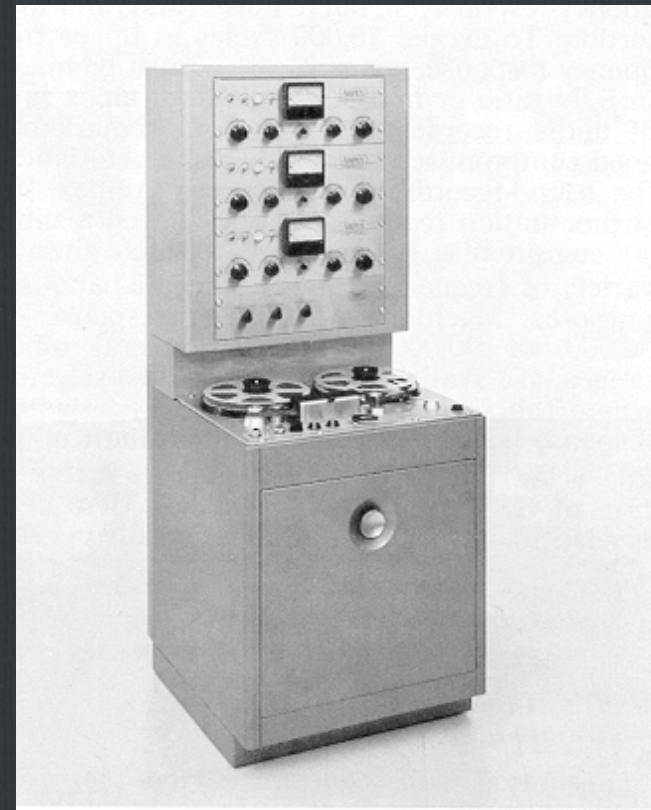
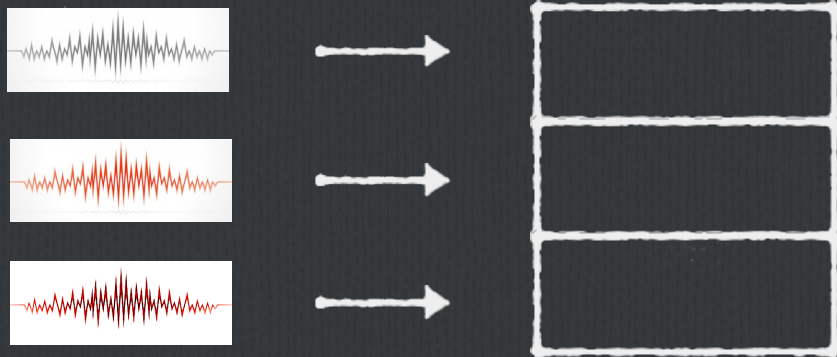


Lover (when you're near me), 1947



Les Paul eksperimenterer

# NY TEKNOLOGI → ØKT FLEKSIBILITET



Ampex 3-spors

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**«Then came three-track recording; it allowed the option of adding another voice or putting a string section on, or something like that. Now this is a significant step, I think; it is the first time it was acknowledged that the performance isn't the finished item, and that the work can be added to in the control room, or in the studio itself.»**

**Brian Eno, The Studio as Compositional Tool, i Audio Culture: Readings in Modern Music (red.) Cox & Warner, New York, The Continuum Group, s.128-29.**

# FLERSPORSOPPTAK



## NYE OPPTAKSPRAKSISER

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- Individuelle tagninger
- Kildeseparasjon
- Miksing etter opptak
- Framføringas autentisitet mindre viktig
- Produsenter/teknikere viktigere for helheten

# Phil Spector «Wall of sound»

«[...] it was [Phil Spector], single-handed, who turned the producer from an obscure backroom boy whose name was of little or no importance to the average record buyer, into a figure whose function paralleled that of a film director.»

(Richard Williams, 2003, *Out of his head*, Omnibus Press, London, s.12)



Phil Spector

# Phil Spector «Wall of sound»

- **Utnytter flersporsopptakets muligheter**
- **Utvidet instrumentering**
- **Økt skille: plateutgivelse - live**



**The Ronettes, Be my baby (1964)**

# MANIPULASJON

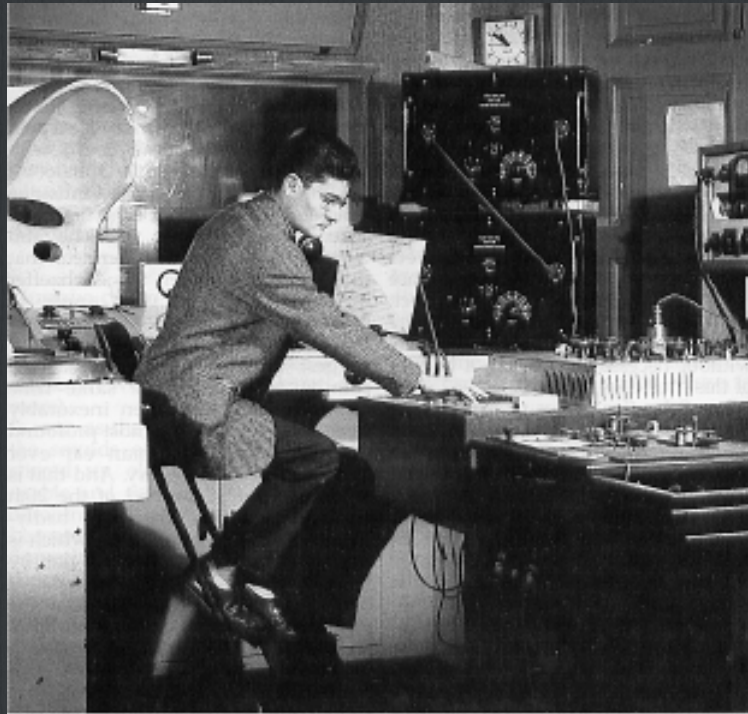
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- Lydbånd**
- Elektronisk**

# LYDBÅNDMANIPULASJON

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Fra 50-tallet: Etablert praksis i konkret musikk



Pierre Henry i studio



# LYDBÅNDMANIPULASJON

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## TIDLIG ELEKTRONISK POPMUSIKK



Tom Dissevelt & Kid Baltan (Dick Raaijmakers): Electronic Movements (1958)

# LYDBÅNDMANIPULASJON

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- **Lydsløyfer (loops)**
- **Baklengs**
- **Hastighetsendringer**
- **Flanging**



“I was into tape loops at the time,” explains Paul. “I had two Brennell machines and I could create tape loops with them...I used to get a lot of seagulls in my loops; a speeded-up shout, hah ha, goes squawk squawk.”

# LYDBÅNDMANIPULASJON

Inn i mainstream popmusikk på 60-tallet



The Beatles



Jimi Hendrix

# ELEKTRONISKE LYDEFFEKTER



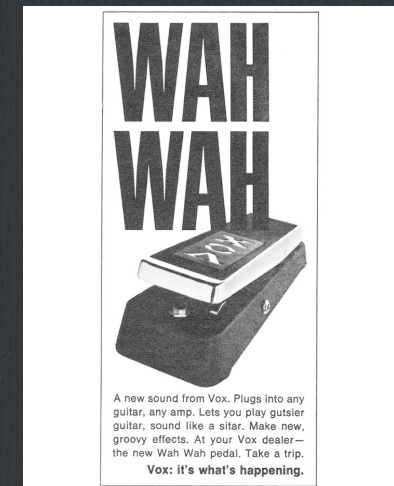
Tremolo/vibrato: Leslie 1941->



EchoSonic (1955)



Maestro FZ-1 Fuzz-Tone (1962)



Vox Wah-wah (1967)



# Konklusjon

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- ❑ **Etterkrigstidens popmusikk har i stor grad vært preget av nye former for musikkteknologi**
- ❑ **Nye instrumenter har gitt nye uttrykksmuligheter**
- ❑ **Nye lydmedier påvirker både konsumpsjon og produksjon**
- ❑ **Studioet som kompositorisk miljø har framhevet produksjon framfor framføring**