



BEAUTIFUL NOISE

Directions in Electronic Music

www.ele-mental.org/beautifulnoise/

*A WORK IN PROGRESS (3rd rev., Oct 2003)
Comments to eluna@ele-mental.org*

A Few Antecedents

The Age of Inventions

The 1800s produce a whole series of inventions that set the stage for the creation of electronic music, including the telegraph (1839), the telephone (1876), the phonograph (1877), and many others. Many of the early electronic instruments come about by accident: Elisha Gray's 'musical telegraph' (1876) is an extension of his research into telephone technology; William Du Bois Duddell's 'singing arc' (1899) is an accidental discovery made from the sounds of electric street lights.



"The musical telegraph"
Elisha Gray's interesting instrument, 1876

The Telharmonium

Thaddeus Cahill's *telharmonium* (aka the *dynamophone*) is the most important of the early electronic instruments. Its first public performance is given in Massachusetts in 1906. It is later moved to NYC in the hopes of providing soothing electronic music to area homes, restaurants, and theatres.

However, the enormous size, cost, and weight of the instrument (it weighed 200 tons and occupied an entire warehouse), not to mention its interference of local phone service, ensure the telharmonium's swift demise. No recordings of the instrument survive, but some of its principles are later incorporated into the Hammond organ. More importantly, Cahill's idea of 'canned music,' later taken up by Muzak in the 1960s and more recent cable-style systems, is now an inescapable feature of the contemporary landscape.



Telharmonium Hall
Cahill's 200-ton experiment in canned music, ca. 1910

Ferruccio Busoni

This Italian composer reads about the telharmonium and is prompted to consider the future of music.

(1907) "Sketch of a New Aesthetic of Music":
Suddenly, one day, it seemed clear to me that full flowering of music is frustrated by our instruments ... In their range, their tone, what they can render, our instruments are chained fast and their hundred chains must also bind the composer...

... Let us take thought, how music may be restored to its primitive, natural essence; let us free it from archectonic, acoustic and aesthetic dogmas; let it be pure invention and sentiment, in harmonies, in forms, in tone-colours ... let it follow the line of the rainbow and vie with the clouds in breaking sunbeams; let Music be naught else than Nature mirrored by and reflected from the human breast; for it is sounding air and floats above and beyond the air; within Man himself as universally and absolutely as in Creation entire...



Ferruccio Busoni
Imagined it all, ca. 1900s



Alexander Scriabin
Envisions early multimedia event, ca. 1915

Alexander Scriabin

This short-lived Russian visionary composer imagines his last work to be a vast, seven-day apocalyptic showcase for his convulsive music. Called *Mysterium*, it would have included music, dance, changing lights and smells, and bells suspended from clouds. Left unfinished at his death in 1915, it inspires many later composers to propose similar ideas.

The Culture of Noise

Futurism

(1909) "The Founding and Manifesto of Futurism," article by **Filippo Tommaso Marinetti**:

We will sing of great crowds excited by work, by pleasure, and by riot; we will sing of the multicolored, polyphonic tides of revolution in the modern capitals; we will sing of the vibrant nightly fervor of arsenals and shipyards blazing with violent electric moons; greedy railway stations that devour smoke-plumed serpents; factories hung on clouds by the crooked lines of their smoke; bridges that stride the rivers like giant gymnasts, flashing in the sun with a glitter of knives; adventurous steamers that sniff the horizon; deep-chested locomotives whose wheels paw the tracks like the hooves of enormous steel horses bridled by tubing; and the sleek flight of planes whose propellers chatter in the wind like banners and seem to cheer like an enthusiastic crowd.

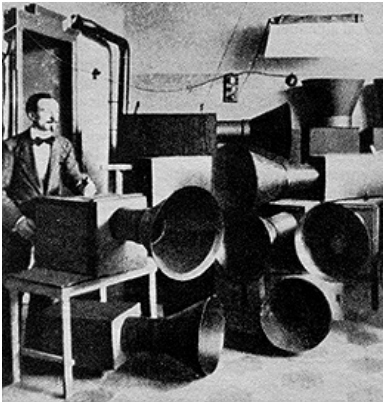


Filippo Tommaso Marinetti
Zang Tumb Tumb publication, 1912

Luigi Russolo

(1913) "The Art of Noises" booklet:

Ancient life was all silence. In the nineteenth century, with the invention of the machine, Noise was born. Today, Noise triumphs and reigns supreme over the sensibility of men. For many centuries life went by in silence, or at most in muted tones. The strongest noises which interrupted this silence were not intense or prolonged or varied. If we overlook such exceptional movements as earthquakes, hurricanes, storms, avalanches and waterfalls, nature is silent...



Luigi Russolo
With the *Intonarumori*, 1910s

Every manifestation of our life is accompanied by noise. The noise, therefore, is familiar to our ear, and has the power to conjure up life itself. Sound, alien to our life, always musical and a thing unto itself, an occasional but unnecessary element, has become to our ears what an overfamiliar face is to our eyes. Noise, however, reaching us in a confused and irregular way from the irregular confusion of our life, never entirely reveals itself to us, and keeps innumerable surprises in reserve. We are therefore certain that by selecting, coordinating and dominating all noises we will enrich men with a new and unexpected sensual pleasure.

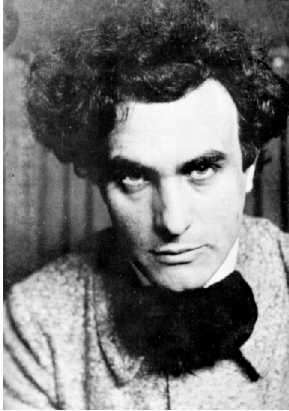
(1913–20s) Public performances of 'The Art of Noises' featuring *Intonarumori* noise instruments (hand-cranked to produce rattling and scraping sounds), destroyed in World War II.

The Great War

(1914–1918) First time mechanized warfare used on a mass scale (including chemical agents); greatly accelerates technological advances but at the cost of over 10 million lives. Abysmal conditions in the trenches and on the battlefields leave millions more scarred physically and emotionally; directly leading to the rise of Soviet-style communism and German National Socialism (Nazism); while also leaving a legacy of nihilistic art movements such as *dada* and *surrealism*, as well as utopian movements such as Russian *constructivism* and Dutch *De Stijl*.



Devastation in the Chateau Wood, France, 1917



Edgard Varèse
The young composer, ca. 1910s

Edgard Varèse [1.0]

French composer inspired by Busoni's "Sketch of a New Aesthetic of Music" begins thinking about his own desire to transcend traditional thinking; in 1915 emigrates to NYC and all early compositions are lost.

(1917) Quoted in 391 periodical:

I long for instruments obedient to my thought and whim, with their contribution of a whole new world of unsuspected sounds, which will lend themselves to the exigencies of my inner rhythm.

(1923) *Hyperprism*

One of the earliest compositions written solely for percussion; created riot in New York audience.

(1929–31) *Ionisation*

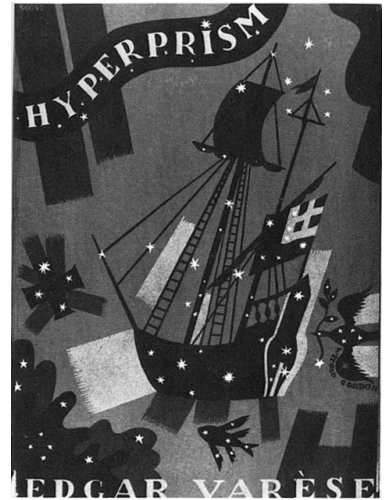
Best-known composition for percussion; also used two variable-tone sirens.

(1930) "The Liberation of Sound" manifesto; from a round table discussion in Paris:

The raw material of music is sound. That is what the 'reverent approach' has made people forget—even composers. Today when science is equipped to help the composer realize what was never before possible—all that Beethoven dreamed, all that Berlioz gropingly imagined possible—the composer continues to be obsessed by traditions which are nothing but the limitations of his predecessors. Composers like anyone else today are delighted to use the many gadgets continually put on the market for our daily comfort. But when they hear sounds that no violins, wind instruments, or percussion of the orchestra can produce, it does not occur to them to demand those sounds for science. Yet science is even now equipped to give them everything they may require.

And there are the advantages I anticipate from such a machine: liberation from the arbitrary paralyzing tempered system; the possibility of obtaining any number of cycles or, if still desired, subdivisions of the octave, and consequently the formation of any desired scale; unsuspected range in low and high registers; new harmonic splendors obtainable from the use of subharmonic combinations now impossible; the possibility of obtaining any differential of timbre, of sound-combinations, and new dynamics far beyond the present human-powered orchestra; a sense of sound projection in space by the emission of sound in any part or in many parts of the hall as may be required by the score; cross rhythms unrelated to each other, treated simultaneously, or to use the old word, 'contrapuntally,' since the machine would be able to beat any number of desired notes, any subdivision of them, omission or fraction of them—all these in a given unit of measure of time which is humanly impossible to attain.

(1927–1940s) Engages in numerous failed attempts to fund development of practical electronic instruments; all but stops composing; strongly considers suicide.



Hyperprism

Score cover of infamous percussion piece, 1923

Some Early Developments



Clara Rockmore
The ultimate theremin player, ca. 1920s

The Theremin

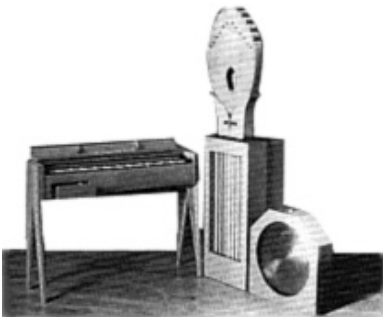
In 1917, **Leon Theremin** (born Lev Sergeivitch Termen in Russia), invents one of the earliest electronic instruments. The *theremin*, as it is later to be called, is controlled by waving the hands delicately over two antennae. Despite the difficult requirements for playing the instrument (perfect pitch and incredibly subtle hand gestures), it quickly becomes the electronic instrument of choice throughout the 20s, and is used in a number of orchestral works. **Clara Rockmore** becomes the premier *virtuosa*, and tours the world extensively.

By the 40s, however, its rather harsh timbre, as well as the scarce number of *virtuoso* players, relegate the theremin to film soundtracks such as the psychological thrillers *Spellbound* (1945) and *The Lost Weekend* (1945). By the 50s it becomes popular in science-fiction soundtracks, where such films as *The Day the Earth Stood Still* (1953) and *It Came from Outer Space* (1953) are among the first to link science-fiction with spooky, electronic sounds.

Even today, the theremin remains a 'novelty instrument,' despite being revived numerous times by such artists as **The Beach Boys** (whose hit "Good Vibrations" is graced by a whirring, keyboard version of the instrument), **Led Zeppelin**, and later groups such as **Meat Beat Manifesto**.



The Lost Weekend
Billy Wilder's dark film about alcoholism, 1945



The Ondes Martenot
A new alternative in electronic sound, ca. 1928

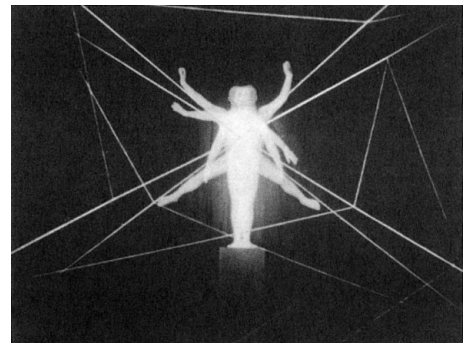
The Ondes Martenot

Maurice Martenot contributes his own theremin-style instrument in 1928, utilizing a standard keyboard and adding ways to change the character of the sounds. Composers such as **Edgard Varèse** and **Olivier Messiaen** immediately take to the instrument, which is far easier to use than the theremin, thereby ensuring its survival as an occasional orchestral instrument to the present day.

The Bauhaus

(1921–29) **Oskar Schlemmer** and **László Moholy-Nagy** describe theories of abstract dance and theater (bodies functioning like geometric, machine-like elements in space); experimental music is considered but not developed.

(1929–30) **Paul Hindemith** & **Ernst Toch** conduct experiments with variable-speed turntables; trigger explorations by several Bauhaus members (but soon abandoned).



Spatial Delineation with Figure
Oskar Schlemmer, 1920s

John Cage



John Cage
Preparing piano, ca. 1940s

John Cage

(1937) Lecture "The Future of Music: Credo"

I BELIEVE THAT THE USE OF NOISE

Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating. The sound of a truck at 50 m.p.h. Static between the stations. Rain. We want to capture and control these sounds, to use them, not as sound effects, but as musical instruments. Every film studio has a library of 'sound effects' recorded on film. With a film phonograph it is now possible to control the amplitude and frequency of any one of these sounds and to give to it rhythms within or beyond the reach of anyone's imagination. Given four film phonographs, we can compose and perform a quartet for explosive motor, wind, heartbeat, and landslide.

TO MAKE MUSIC

If this word, music, is sacred and reserved for eighteenth- and nineteenth-century instruments, we can substitute a more meaningful term: organization of sound.

WILL CONTINUE AND INCREASE UNTIL WE REACH A MUSIC PRODUCED THROUGH THE AID OF ELECTRICAL INSTRUMENTS

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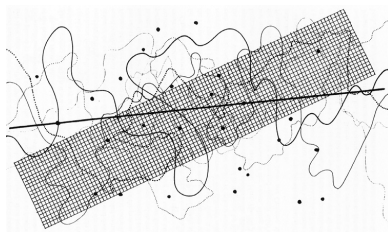
(1939) *Imaginary Landscape No. 1*

Composed for muted piano, gong, two variable-speed turntables playing electronic test tones; credited as first electronic music composition.



I-Ching
Chinese hexagrams used by John Cage

(1940) Creates prepared piano as alternative to percussion ensemble; presages similar conceptual approach to sampling keyboards by over 40 years.



Fontana Mix
Score with transparent overlays, 1958

(1950s)

Begins introducing chance elements into his compositions; utilizing the *I-Ching* to determine compositional structure. Composes *4'33"* (1952), a so-called "silent piece," to call attention to fact that all sounds (even audience noise) can be seen as music. Also creates *Williams Mix*, an early electronic tape collage; later composes similar *Fontana Mix* using transparent score sheets that could be moved randomly.

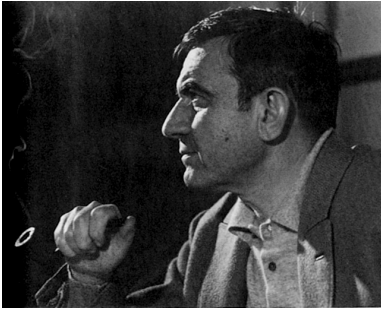
(1960s)

Cage and frequent collaborator **David Tudor** create numerous live electronic works for choreographer **Merce Cunningham**, including *Cartridge Music* (1960), *Variations V* (1966), and Tudor's own *Rainforest* (1968). Cage also revives interest in the music of **Erik Satie** by staging first performance of *Vexations* (1893), a simple piano phrase that is meant to be repeated 840 times. The performance lasts about 18 hours.



Merce Cunningham
Septet, 1953

Musique Concrète



Pierre Schaeffer
ca. 1960s

Pierre Schaeffer

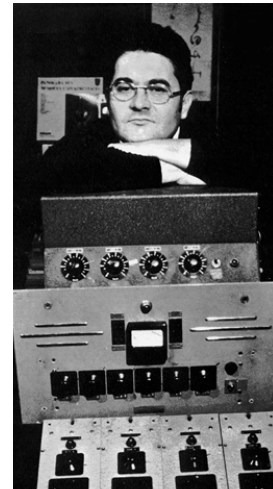
(1948) *Concert de bruits (Concert of Noises)* broadcast over Radiodiffusion Télévision Française (RTF) in Paris; first *musique concrète* ever heard.

Etude aux chemins de fer (Railroad Study) composed on turntable lathes (cutters) from preexisting recordings of rail yards; marks first time that music is made purely from prerecorded sources, turning usual model of composition on its head.

(1950) *Symphonie pour un homme seul (Symphony for a Man Alone)*
Collaboration with **Pierre Henry**

(1967) Excerpt from *La Musique Concrète*:
We have learned to link the lute with the Middle Ages, plainchant with the monastery, the tom-tom with the savage, the viola da gamba with the dress of the royal court. How could we not expect that a music of the twentieth century, of machines and of the masses, would be linked with electronics and calculators?

(1987) Interview, excerpted from *Recommended Records Quarterly Magazine*:
...so these were the three circumstances that compelled me to experiment in music: I was involved in music; I was working with turntables (then with tape-recorders); I was horrified by modern 12-tone music. I said to myself, 'Maybe I can find something different... maybe salvation, liberation, is possible.' Seeing that no-one knew what to do anymore with DoReMi, maybe we had to look outside that... Unfortunately it took me forty years to conclude that nothing is possible outside DoReMi... In other words, I wasted my life.



Pierre Henry
ca. 1960s

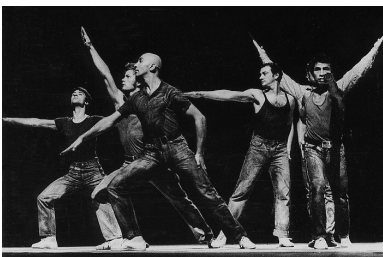
Pierre Henry

(1962) *Le Voyage (The Voyage)*

A brilliant piece of *musique concrète* based on the *Tibetan Book of the Dead*.

(1967) *Messe pour le temps présent (Mass for the Present Day)*

Composed with **Michel Colombier** for ballet by Maurice Béjart; early example of combining electronic sounds with popular music (in this case, 60s psychedelic rock); later remixed by electronic artists (1997) as testament to Henry's contribution to electronic music.



Pierre Henry and Michel Colombier
For Béjart's *Messe pour le temps présent*, 1967

US Innovators

The need for collaborative space to experiment with electronic tape music brings **Vladimir Ussachevsky**, **Otto Leuning**, and **Milton Babbitt** together in the mid 50s to form the **Columbia-Princeton Center for Electronic Music** in NYC, a nexus for electronic music composition in the US for many years. Due to influence of Babbitt, most of the music is heavily informed by the 12-tone compositional approach called **serialism** (which had been begun by the reluctant revolutionary, **Arnold Schönberg**, in Vienna, around 1910). Composers such as **Morton Subotnick**, **Pril Smiley**, **Mario Davidovsky**, **Alice Shields**, and **Wendy Carlos** also emerge from the center.



Vladimir Ussachevsky
Siberian-born US pioneer, 1960s

Leaps & Bounds: The First Electronic Age



Edgard Varèse
ca. 1950s

Edgard Varèse [2.0]

(1954) *Déserts*

At the age of 71, Varèse finally has the tools he needs to realize his work; yet this piece—combining instrumental sections with electronic/tape sections—is received with some hostility.

(1958) *Poème électronique*

One of the most important electronic music compositions ever made is created on a multi-channel tape for over 400 loudspeakers, placed inside hyperbolic Philips Pavilion (designed by **Le Corbusier** and **Iannis Xenakis**) at 1958 World's Fair. The exhibit is visited by over two million people and is later touted as the world's first true 'multi-media installation.'



Iannis Xenakis
ca. 1960s

Iannis Xenakis

Greek resistance fighter-turned-architect-turned-composer is among the first to utilize complex mathematical and algorithmic operations in his music. He is also among the first to visualize possibilities of digital/computer-processed music.

(1958) *Concrèt P-H*

Musique concrète prelude piece for Philips Pavilion is made up of small granules of sound taken from a recording of smoldering coal.

(1959–60) *Orient-Occident III*

Important work dealing with 'mass structures'; cloudlike formations of sound that are the sonic equivalent of chaos theory.

Louis & Bebe Barron

Experimental electronic music couple; begin working with homemade electronics in late 40s; work with Anaïs Nin, John Cage (on *Williams Mix*, 1952), others.

(1956) *Forbidden Planet*

Unique science-fiction adaptation of Shakespeare's *The Tempest* serves as opportunity to create first all-electronic film score; continuing association between electronic music and sci-fi. The Barron's system utilizes self-destructing circuits arranged like human nervous system, resulting in sounds that are surprisingly organic. In the film, their work is billed as 'sonic artistry' (not music) to avoid wrath of music unions.



Karlheinz Stockhausen
early 1960s

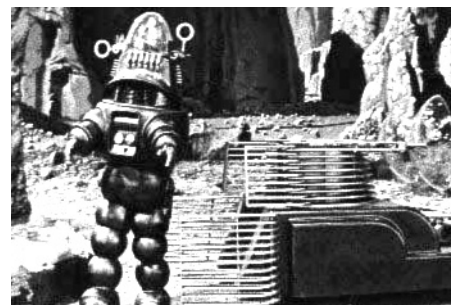
Electronic Music Centers

Often based at universities or radio stations; which are among the few places where electronic music can be realized:

- Columbia-Princeton Electronic Music Center
- University of Illinois
- University of Toronto
- Cologne radio (see **Herbert Eimert**, and especially the brilliant **Karlheinz Stockhausen**, whose vast body of work incorporates serialism, hybrids between tape and pure electronic music, radical presentational techniques, improvisation, and much more)
- Radiodiffusion Télévision Française



Philips Pavilion
World's Fair, Brussels, Belgium, 1958



Forbidden Planet
Electronic score by Louis & Bebe Barron, 1956

Democratization & Proliferation



Robert Moog
ca. 1970s

Robert Moog

(1964) Moog modular keyboard

Miniaturization of transistor technology allows for development of more affordable, portable instruments. The first one sold is to choreographer **Alwin Nikolai**, who uses it in a number of dance pieces. Soon Moog keyboard (along with less ubiquitous **Buchla** system devised almost simultaneously by **Donald Buchla**) begins making appearances in commercials and popular music, starting whole craze of 'switched-on' classical and pop music that lasts well into 1970s, as well as longer-lasting psychedelic and 'space' rock movement.

Novelty Electronic Music

(1968–ca. 1975)

Often preoccupied with 'humanizing' electronic sounds. *Switched-On Bach* (1968), featuring arrangements of Bach performed on the Moog by Walter (now **Wendy**) **Carlos**, prompts 'switched-on' craze and becomes the highest-selling classical album until recently. Meanwhile, Japanese arranger **Isao Tomita** brings out the sensual qualities of **Debussy** and **Ravel** (among others) by creating his own, densely layered electronic arrangements.

Electronic arrangements of bubblegum pop music (some brilliant, some forgettable) also become ever-present; see work of **Jean Jacques Perrey**, **Gershon Kingsley**, **Walter Sear**, **Bruce Haack**.



Music To Moog By
Charming electronic ditties by Gershon Kingsley



Can
Space jammers, early 1970s

Krautrock/Space Rock

(ca. 1968–1978)

Rough category of mostly European (and mostly German) music influenced by **Terry Riley's** *In C* and desire to break from rampant U.S. pop music; encompassing everything from the repetitive rock jams of **Can**, **Faust**, and **Amon Düül II**; the electronic noodlings of **Tangerine Dream**, early **Kraftwerk**, **Neu!** and **Cluster**; the psychedelic immersions of **Pink Floyd**; and the synth-heavy planetarium music of **Jean Michel Jarre** and **Vangelis**; all of whom heavily influence artists all over the globe, from **David Bowie** and the New Wave music of the 70s, to **Stereolab** and the 'post-rock' of the 90s.

Kraftwerk

The singular influence on New Wave, techno-pop, and nearly every form of electronic dance music. Based in Düsseldorf, Germany, Kraftwerk attempted nothing less than to create an international electronic 'volksmuzik,' beginning with experimental albums in the early 70s and continuing with their epic highway lullaby, *Autobahn* (1974), and increasingly fetishistic concept albums such as *Trans-Europe Express* (1977), *The Man-Machine* (1978), and *Computer World* (1981). They are later to reemerge in the 90s as the undisputed godfathers of the techno/electronica scene.



Kraftwerk
The Machine Men, quoting Rodchenko, Düsseldorf, 1978

Minimalism and the Ambient Connection



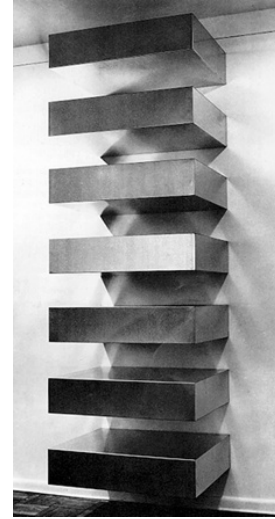
Meredith Monk
In *Education of the Girlchild*, 1974

Minimalist Classical Music

Following template provided by Cage and **Morton Feldman** in the 50s, early 60s composers such as **La Monte Young**, **Tony Conrad**, **John Cale**, and **Terry Riley** begin to experiment with simple compositions of extremely long duration; concurrent with rise of minimalist sculpture, Fluxus, and 'happenings.' Better known names such as **Steve Reich**, **Philip Glass**, and **John Adams** also become associated with the minimalist movement, as well as singer-composer-choreographer **Meredith Monk**, whose unique work combines elements of dance, theater, music, and installation art. Reich also pioneers use of 'phasing'—playing two recordings at the same time, at slightly different speeds—inspiring later experiments in electronic music.

Environmental/Meditation Music

Improvements in field recording techniques result in release of sound environment records meant for meditation and relaxation. Thus the first 'ambient music' is born, working hand-in-hand with popular interest in Eastern spirituality, yoga, and other somatic and therapeutic techniques.



Donald Judd
Untitled work, 1960s



Brian Eno
In the studio, late 1970s

Brian Eno

The former experimental keyboardist for glam-rock supergroup **Roxy Music**, also dabbles in environmental music, popularizing notion of 'ambient music' with series of beautifully low-key releases such as *Discreet Music* (1975) and *Ambient 1: Music for Airports* (1978). After launching this movement, Eno goes on to produce seminal albums for **David Bowie**, **Talking Heads**, **U2**, and many others; utilizing many experimental and chance approaches to composition and sound construction.

New Age

While the 70s sees rise of Krautrock, progressive rock, and space rock (among others); most of these lose momentum with advent of disco, punk, heavy metal, and New Wave. By late 70s, 'new age' carries the torch for the concept of 'music as therapy.' **Stephen Halpern** releases series of records with healing specifically in mind, while the prolific label **Windham Hill** releases moody instrumental music by such artists as **William Ackerman** and **George Winston**.



Windham Hill Records
Bastion of New Age music. 1980s

Ambient house, 'Intelligent Dance Music'

By late 80s, Eno-inspired work begins to infiltrate dance music, spurring the short-lived genre 'ambient house,' exemplified by the cynical sample-thievery of **The KLF** and the tripped-out soundscapes of **The Orb**. By the early 90s, like-minded acts such as **Aphex Twin**, **The Black Dog**, **Autechre**, **Global Communications**, and **Kirk Degiorgio** begin to incorporate more obvious references to Detroit techno and New York electro, while adding their own quirky touches of musicality. This new 'armchair' techno is christened 'Intelligent Dance Music' to distance it from the burgeoning rave scene.



Aphex Twin
Intelligent music for cash

The Dance Music Continuum Pt.1



King Tubby
The ultimate studio noodler, ca. 1970s

Dub

(ca. 1968–1978)

Jamaican phenomenon that emerges from 50s 'sound system' parties (where opposing DJ setups try to blare each other out). By the late 60s, innovative producer **King Tubby** (aka **Osbourne Ruddock**) begins removing vocals from popular tunes in order to let audience chant lyrics themselves; quickly turning these 'dubs' into wildly popular genre of its own, laced with heavy reverb, delay, and other studio effects. Dub is later promulgated by the likes of **Lee 'Scratch' Perry**, **Augustus Pablo**, and **Scientist**.

The influence of dub is felt second-hand in the NYC hip-hop scene of mid 70s, but has a more direct effect on large West Indian population of the UK, while triggering post-punk experiments by the likes of **Public Image Ltd.** (fronted by ex-**Sex Pistol** John Lydon), techno-tribalists **23 Skidoo**, and industrial-dub producer **Adrian Sherwood** (with his **On-U** label).

Dub is also later revived through the 90s work of **Massive Attack**, and is rightly cited as an essential influence on drum'n'bass. At the same time, it provides the impetus for rise of 'trip-hop'; and is reinterpreted heavily by the axis surrounding Germany's techno artists **Basic Channel** (including **Pole**).



Public Image Ltd.
Dub-infused post-punk death-disco, *First Issue*, 1978



Giorgio Moroder
The Munich Machine Man, 1977

Disco

(ca. 1974–1980)

Begins in Euro dance clubs as well as US underground scene. In Europe, it takes on more electronic influences right away (thanks thanks to role of German 'eurodisco' producers **Giorgio Moroder** and **Pete Bellotte**); while in the US the music incorporates elements of black, latino, and gay culture. Both strains inspire a dance and DJ craze throughout the world (esp. in NYC, where the notorious Studio 54 becomes one of the most celebrated clubs in history); and trigger the creation of the 12-inch vinyl record (ca. 1975) to extend a single-length song to epic proportions.

By the later 70s, disco is seen by many (especially in rock, funk, and emerging hip-hop communities) as watered down, disposable music; by 1980, the bubble bursts. Disco, however, soon becomes house music.

Hip-Hop (The Unrecorded Years)

(ca. 1974–1980)

Begins with block parties in the South Bronx (NYC) in the early 1970s, including 'soundclashes' promoted by the Jamaican-born **Kool Herc**; soon an entire culture of DJing, MCing, breakdancing, and graffiti emerges, lead by DJs such as **Grandmaster Flash**, **Afrika Bambaataa**, and **Grand Wizard Theodore**.

During this time, the term 'breakbeat' arises; describing the process of playing only the short, instrumental breakdowns of obscure soul, funk, and miscellaneous other records (especially those of **James Brown**). Later, these snippets form backbone of recorded hip-hop, as well as drum'n'bass and trip-hop in the 90s.



Grandmaster Flash
ca. early 80s

The Punk/Electronic Connection

New Wave/Post-Punk/Technopop/Darkwave

(ca. 1978–1983)

New Wave provides a more radio-friendly alternative to the brevity and abrasiveness of punk music. **David Bowie** again provides impetus (as he did with punk), this time with the 'Berlin trilogy' of *Low*, "*Heroes*," and *Lodger*. But it is **Gary Numan** who runs with the idea, pushing his 'synthetic funk' to the masses. Meanwhile, other UK acts such as **Public Image Ltd.**, **Siouxsie and the Banshees**, NYC's **Suicide**, and San Francisco's **Chrome** take a different perspective on 'post-punk,' offering a far more dissonant kind of music than punk itself ever was.



Suicide
Confrontational techno-punks, late 70s

Another derivation comes from the camp of post-punkers **Wire**, whose members **Bruce Gilbert** and **Colin Newman** begin experiments in ambient electronics. By the 90s, Gilbert is heavily involved in the UK's techno scene himself. Meanwhile, techno-pop groups such as **Yellow Magic Orchestra**, **Orchestral Manoeuvres in the Dark**, **Human League**, **New Order**, **Fad Gadget**, and **Depeche Mode** pick up where **Kraftwerk** left off, even as the 'new romantic' movement (**Japan**, **Duran Duran**, **Talk Talk**, **Ultravox**, **Visage**) starts to swing.

A fringe of harsher disco/punk/funk bands hover on the periphery as well, including UK groups **A Certain Ratio**, **Section 25**, **Clock DVA**, and **23 Skidoo**, along with NYC groups like **Liquid Liquid** and **ESG**; while even darker, moodier bands such as **Sisters of Mercy**, **Clan of Xymox**, **Cindytalk**, **Swans**, and **Death in June** offer sinister possibilities.

Industrial

(ca. 1983–present)

The proper term 'industrial' is the province of the UK's **Throbbing Gristle**, whose previous incarnation as shock artists **COUM Transmissions** helps earn them the title of 'the wreckers of civilization' in the mid 70s. Their releases combine gruesome images with extreme electronic sounds. Along these lines, Sheffield's **Cabaret Voltaire** (whose name is taken from the Zürich café that spawned *dada*) also explore extreme electronic dissonances with a penchant for bass-driven rhythms. Berlin's blistering **Einstürzende Neubauten** and the UK's equivalent, **Test Dept**, use their own home-made instruments and power tools to destroy stages across Europe.



Skinny Puppy
Canadian disturbances, mid 80s

By the mid 80s, few groups are willing to go to such extremes. One exception, Vancouver-based **Skinny Puppy**, finds itself constantly harassed for its portrayals of animal vivisections and other miscellaneous gore. By the late 80s, the term 'industrial' in the US mistakenly applies to what is known in Europe as 'electronic body music' (exemplified by **D.A.F.**, **Front 242**, and **Nitzer Ebb**). Soon, electronics-laden rock groups like **Ministry** and **Nine Inch Nails** are considered 'industrial,' despite their lack of destructive *accoutrements*. By the late 90s, some trance-influenced groups (such as Norway's prolific **Apoptygma Berzerk**) also fall under the 'industrial' moniker.



Siouxsie Sioux
Unsafe New Wave, early 80s

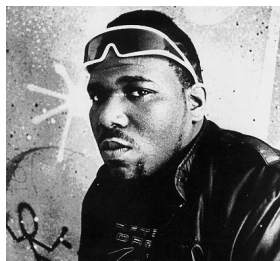


Clock DVA
Avant funk punk, early 80s



Einstürzende Neubauten
'Collapsing New Buildings'

The Dance Music Continuum (Pt.2)



Afrika Bambaataa
Early 1980s

Electro

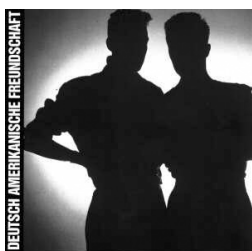
(ca. 1981–1986)

Emerges in New York City out of a cross-fertilization between hip-hop culture with **Kraftwerk**, video game music, 'electric funk' (such as **Parliament**), and 'eurodisco' (such as Belgian exports **Klein & MBO**, and **Telex**). Thanks to the huge success of 1983's "Planet Rock" by **Afrika Bambaataa** and **Arthur Baker**, the genre is soon characterized by its 'synthetic' feel and staccato, syncopated rhythms, making it ideal for breakdancing.

Electro undergoes a massive revival in mid 90s with Detroit's **Underground Resistance**, **Drexcia**, **Aux 88**, **DJ Assault**, and **Ectomorph**; as well as European artists (drawing from their own Kraftwerkian heritage) such as Germany's **DJ Hell**, **Anthony Rother**, and **Ellen Allien**; Austria's **I-F**; and the UK label **Warp**, with artists **LFO**, **Autechre**, and **Andrea Parker**.



Ellen Allien
Mistress behind the B-Pitch Control



Deutsche Amerikanische Freundschaft
'German-American Friendship,' early 1980s

Techno

(ca. 1983–present)

Although techno arguably begins with European 'electronic body music' of early 80s artists such as Germany's **D.A.F.** and Belgium's **Front 242**, along with New Wave and 'euro disco,' it is only truly brought to light by the brilliant futuristic releases of Detroit's **Juan Atkins** (aka **Model 500**) and later, Detroiters **Derrick May**, **Kevin Saunderson**, **Eddie Fowlkes**, **Jeff Mills**, and **Carl Craig**; along with New Yorkers **Frankie Bones**, **Tommy Musto**, and **Lenny Dee**.

By the late 80s, techno (along with Chicago/NY house) crosses the ocean to the UK and Europe, hybridizing with local influences (including Manchester's infamous Factory club, **The Hacienda**, subject of the recent film, *24 Hour Party People*) to produce new splinter genres that quickly become difficult to differentiate (such as 'collage house,' 'acid house,' 'ambient house,' 'Intelligent Dance Music,' 'trance,' 'tribal,' 'hardcore,' and many others).

Detroit techno itself undergoes a kind of split in the early 90s, between the Windsor, Canada-based label **Plus 8** (home of **Plastikman**), and hometown label and political collective **Underground Resistance**. Both have lasting impacts on the European techno scene, notably Berlin's **Tresor** label.



Underground Resistance
Sonic revolutionaries



Frankie Knuckles
Kick-starting a musical movement, Chicago

House

(ca. 1983–present)

By the early 80s, disco goes underground, becoming more electronic. **Frankie Knuckles**, a New York DJ transplanted to Chicago, becomes resident at **The Warehouse**, giving 'house music' its name. Meanwhile, NYC DJs such as **Larry Levan** and labels such as **Salsoul**, **West End**, and **Prelude** develop their own style of house, as labels **Trax** and **DJ International** consolidate a gospel and soul-inspired Chicago sound. **Trax** also pushes the squelchy 'acid' sound discovered accidentally by a group named **Phuture**; soon 'acid' takes off to the UK, where it almost single-handedly spawns the massive European rave scene.



Juan Atkins
Detroit, late 1990s



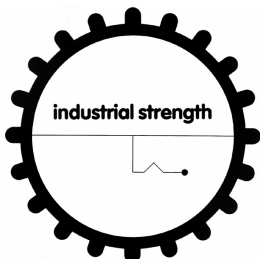
Roland TB 303
The 1983 gadget that birthed the squelch of 'acid'

The Dance Music Continuum (Cont.)

Hardcore

(ca. 1991–present)

Takes rawest side of 'acid' and techno sound (including Belgian 'new beat' and some of **UR's** harder material) and pushes it to the furthest extremes of noise and speed. Frankfurt's **Planet Core Productions** label and The Netherlands' **Rotterdam Records** promote the sound in Europe, while **Lenny Dee's Industrial Strength** label in NYC does it stateside (triggering the growth of the hardcore scene in Chicago, featuring **DJ Delta 9**, and the entire Milwaukee scene, represented by **Drop Bass Network**).



The mid 90s free festival scene represents the culmination of underground techno events in Europe, birthing such notable hardcore techno collectives as **Spiral Tribe** and **Network 23**. But as each country slowly latches down on party-goers, the scene is forced to retreat, and only just survives in France, where the hardcore scene delivers hard-hitting political critiques of the status quo through its devastating music.



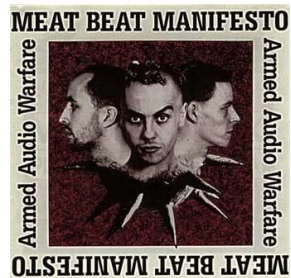
Drum'n'Bass

(ca. 1991–present)

Begins as extension of sample-based 'collage house' but quickly specializes in the creative use of breakbeats, inspired by dub music as well as UK artists such as **Meat Beat Manifesto** and US hip-hop artists **Public Enemy**.



By early 90s, UK labels **Shut Up and Dance** and **Reinforced** innovate new ways to cut up breakbeats. Later joined by **Suburban Base**, **Formation**, and **V Recordings** labels, the genre evolves and speeds up at a manic pace, going through no less than six permutations in three years (including 'darkside,' 'ragga,' 'jazzy,' 'intelligent,' 'jump-up,' and 'tech-step').

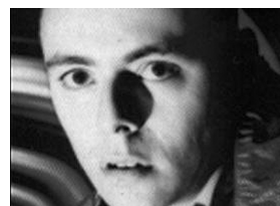


Meat Beat Manifesto
Masters of syncopation, late 80s



Roni Size
Reprazenting the highest side of jazzy d'n'b

Darker aspects of drum'n'bass eventually coalesce into micro-detailed 'tech-step' (see **Ed Rush, Optical**) and raucous, hardcore-inspired 'breakcore'; lighter sides eventually lead to a divergence from drum'n'bass altogether, back towards dance-friendly forms such as 'speed garage,' 'two step' (see **Armand Van Helden**), and even 'big beat' (see **Fatboy Slim, Chemical Brothers**).



Ed Rush
Tech-step technician

90s Ambient

(1990–present)

Ambient music continues to be explored by a number of artists in various modes, from the 'dark ambient' of the **Projekt** label; to the 'illbient' of **DJ Spooky**; to the CD-skips of Germany's **Oval**; and a whole host of electro-experimentalists on the **Mille Plateaux** label. Various 'post-rock' outfits explore a territory beyond rock and closer to jazz or soundtrack music; such as Chicago pioneers **Tortoise** and **Gastr del Sol**, Michigan's hazy **Labradford**, Scotland's brash **Mogwai**, Montreal's enigmatic **godspeed you black emperor!**, and Iceland's dirge masters **Sigur Rós**. Even longtime acts such as **Radiohead** and **Sonic Youth** become more understandable in this context.

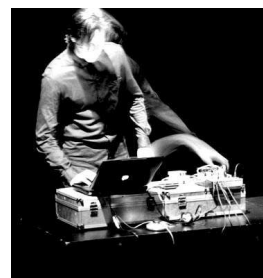


godspeed you black emperor
Images from Montreal's poetic music collective

A Few Recent Trends: Noise & Extreme Beats

Noise

'Noise music' is spurred by industrial groups such as **Neubauten**; spawning ear-blistering experiments by the likes of **Non**, **Whitehouse**, **Merzbow**, **The Boredoms**, and **Emil Beaulieu** throughout the 80s. By the late 90s, laptop computers make 'digital noise' music possible, with new software allowing for more extreme (and 'real-time') tweaking. **Pita** and **Christian Fennesz**, both from the Vienna-based label **Mego**, are among the first recognized laptop noise artists. Other directions include the absolute mathematical precision of Japan's **Ryoji Ikeda** and Spain's **Francisco López**, the ultra-political field recordings of LA's **Ultra-Red**, and the rock-based noises of Japan's **Melt Banana** and Detroit's **Wolf Eyes**.



Christian Fennesz
Leading the charge of the laptop brigade



Hecate
Dark Zhark beats from Rachael Kozak

Breakcore

Emerging from remnants of hardcore techno scene in France, Germany, UK (and later the US), artists such as **Christoph Fringeli** (Praxis), **Hecate**, and **DJ Scud** (Ambush) begin to apply the hardcore approach to drum'n'bass, cutting up and obliterating breakbeats beyond recognition. Austria's **Eiterherd** (Widerstand), France's **Rotator** (Peace-Off), Winnipeg's **Venetian Snares**, and Minneapolis' **Bombardier** are also among those instrumental in the development of the sound. San Francisco's **Kid 606** and his **Tigerbeat 6** label, though closely related, cover slightly quirkier ground, while Berlin-based **Atari Teenage Riot** (Digital Hardcore) is seen as the commercial equivalent, albeit somewhat removed from the underground DJ culture.



Venetian Snares
Winnipegian wunderkind

'Power Noise'

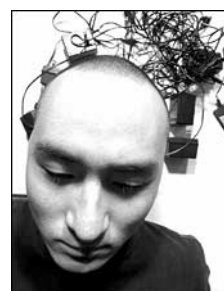
Also parallels closely to hardcore techno scene, with a stronger emphasis on techno/electro styled sounds. German label **Hymen** leads the way, with artists such as the Welsh duo **Somatic Responses**, Seattle-based **Converter**, and France's **Celluloïd Mata** all on the roster. Other representatives of this genre include Texans **Proem** and **L'Usine**, and the Finnish noise merchants **Pan Sonic**, whose stripped-down music of the mid 90s triggers much of what has come.



Pan Sonic
Clean electronic sounds from Finland

'Glitch Electro' / 'Glitch-Hop'

While closely related to 'power noise,' 'glitch electro' owes more to IDM and dance music than its industrial antecedents. Having absorbed the lessons of pioneers such as **Autechre** and **Aphex Twin**, other artists and labels have taken up where their early work left off. Add to this the element of hip-hop and the result is a strange fragmentation of the hip-hop and electro aesthetic.



Richard Devine
Atlanta's glitch king

Among the most prominent US representatives of the hybrid are Atlanta-bred **Richard Devine** and **Scott Herren** (aka **Prefuse 73**), Michigan-based label **Ghostly International**, and Miami labels **Schematic** and **Beta Bodega Coalition**. Meanwhile, UK labels such as **Warp** (and sublabel **Lex**), **Skam**, and artists such as **Plaid**, **LFO**, **Jega**, and **Bola**, as well as German artists **Arovane** and **Funkstörung**, are also very much in the mix.



Beta Bodega
Guerilla chic with guts

A Few Recent Trends: Groove Music

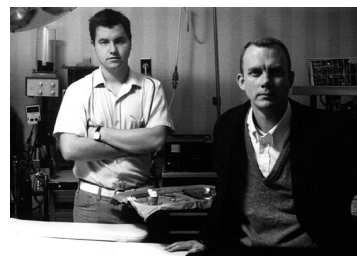


Safety Scissors
Trying hard not to run

'Glitch House'/'Glitch Techno'/'Micro House'

A broad, technical approach to house and techno music, connected to laptop and IDM culture, as well as more dance-friendly styles. Encompasses everything from the hiccuping grooves of San Francisco artists **Kit Clayton**, **Sutekh**, **Safety Scissors**, and sample-pranksters **Matmos**; the bleep-house of Columbus, Ohio-bred artists **Geoff White**, **Todd Sines**, and tribalist **Archetype**; the pop music clips of Montreal's **Akufen**; and the lumbering, on-the-fly sampling techniques of the UK's **Matthew Herbert**.

Closely paralleled by movements in German minimal techno, particularly Cologne's **Thomas Brinkmann**, **Wolfgang Voigt** (aka **Mike Ink**) and the **Kompakt** label, as well as Frankfurt's own labels **Perlon**, **Playhouse**, **Mille Plateaux**, and **Force Inc.**



Matmos
Will sample anything for food



Pole
Dirty scratchy hissy dub techno

'Dub Techno'

Describes a sound influenced by 70s dub from Jamaica as well as 80s techno from Detroit, filtered through the early 90s by the enigmatic Berlin duo known as **Basic Channel**. The two also oversee the burgeoning techno scene represented by the **Chain Reaction** label and eminent dub-techno artists such as **Porter Ricks**, **Monolake**, and **Pole**. While many artists eventually step out from under the Basic Channel umbrella, the influence of their wet, dubby sound (and the mastering plant they establish, called **D&M**) still permeates the work of techno artists across the board.

'Broken Beat'/'West London' Breakbeat

New movement combining the complex beat syncopations of electro and house with the textures of 70s funk-jazz (see **Roy Ayers**, **Donald Byrd**, **Sun Ra**, plus **Fela Kuti** and other afro-funk artists). Centered primarily in the former drum'n'bass scene of West (and North) London, it also includes numerous producers of jazz, hip-hop, and house. In London, the most prominent artists are **4 Hero**'s **Dego McFarlane** and **Mark Clair**, former **Reinforced** stalwart **Seiji**, as well as **Bugz In The Attic**, **Domu**, and **IG Culture**. The sound is not defined by geography, however—as Philadelphia's **King Britt**, Germany's **Jazzanova**, Toronto's **Moonstarr**, and Columbus' **Titonton Duvanté** are also among the worldwide purveyors of this open-ended sound.



Dego McFarlane
4 Hero's foremost mid-fielder

Revivals and New Innovations

Munich's **DJ Hell** (overseeing the labels **Disko B** and **International DeeJay Gigolos**) heralds the electro-pop and synth-disco revivals of the early 2000s, dubiously dubbed 'electroclash,' with artists such as **Adult.**, **DJ Assault**, **Le Tigre**, **Peaches**, **Ladytron**, **Felix da Housecat**, **Gold Chains**, **Chicks on Speed**, and **Fischerspooner** bringing back the fun, spectacle, and fashion—1980s style. At the same time, others such as **Telefon Tel Aviv**, **Four Tet**, **Burnt Friedman**, **Midwest Product**, and **Andrew Pekler** delve into as-yet-uncategorized hybrids between live and electronic music.



Adult.
Detroit's answer to New Wave nausea



DJ Hell
The Munich Machine rides again!