

# Retro Family Tree

**CD TRACK 06**  
A selection of Moog samples taken from our 'sister' web site [www.sampler.net.co.uk](http://www.sampler.net.co.uk).

## FAMOUS USERS

Moog modular systems were expensive, custom-built instruments, owned by a lucky few. One famous early shipment went to the Rolling Stones in March 1968 (Tangerine Dream's Chris Franke acquired the Stone's castaway Moog, putting it to far greater groundbreaking use on their infamous 1970s sequencer-driven extravaganzas).

MiniMoog fans are plentiful – Kraftwerk, Jan Hammer, Vince Clarke, Gary Numan, Air, Depeche Mode and Herbie Hancock – while PolyMoogs fleetingly found favour with Blondie, Rick Wakeman and Keith Emerson. Prodigys have graced recordings past and present by Howard Jones and Fatboy Slim.

∴ Moog is to synths what Hoover is to vacuum cleaners– even indie artists wear Moog T-shirts. Jonathan Miller charts the rise and fall of the company that started it all . . .

**THE MOOG MONIKER** will probably forever remain synonymous with synthesizers. To say the man who lent his name to several truly groundbreaking instruments invented the synthesizer is not strictly true, though Dr Robert A Moog (rhymes with 'vogue') is one of the founding fathers of analogue (subtractive) synthesis. In 1971 the infamous MiniMoog monosynth shaped the synthesizer both in terms of appearance and features.

Bob Moog was something of a childhood genius, spending his formative years building theremins (another worldly wooden box of electronic trickery invented in the 1920s by Russian scientist Leon Theremin, hence the name). In 1954 Moog began selling theremins under the R A Moog Company banner, a lucrative sideline he was to continue throughout his Engineering Physics studies at Cornell University in New York state. While there he published an article detailing theremin construction, offering DIY kits, selling 1,000 in just a year.

Doctorates notwithstanding, a year after the R A Moog Company set up shop in nearby Trumansburg in 1963, its proprietor unwittingly sealed his fate by building the first Moog synthesizer, after composer Herbert A Deutsch convinced him of the need for user-friendly, solid-state electronic instruments.

Moog's first effort, built in 1964, looks like it was cobbled together, but the building blocks of subtractive synthesis – an oscillator being filtered, amplified, then shaped by an envelope generator – were already present and accounted for on Moog's fledgling instrument. Well, almost: a Dual Tone Generator or two VCOs (Voltage Controlled Oscillator) and a VCA (Voltage Controlled Amplifier) were the order of the day.

Spurred on by Deutsch, Moog presented a paper entitled *Voltage-Controlled Electronic Music Modules* at the 16th Annual AES (Audio Engineering Society) meeting in October 1964. Within days, he'd filed a patent for elec-

tronic high-pass and low-pass filters employing the base-to-emitter diode resistance of bipolar transistors (inventor-speak for key Moog modules). This was finally granted by the United States Patent Office in 1969. The 904A ultimately became the foundation of the renowned Moog sound.

## Beginning of the end?

The first hundred or so MiniMoogs were built in Trumansburg, thereafter R A Moog Inc. was bought out (becoming Moog Music), moved to Buffalo, New York, then sold to distribution giant Norlin in 1973. Bob Moog was legally obliged to remain for four years. He then headed for the mountains of Western North Carolina and founded Big Briar Inc.

Moog Music, meanwhile, rested on their MiniMoog laurels; their next instrument of note was 1975's monstrous

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## Switched-on

When the press reported widely that Walter (later Wendy) Carlos had painstakingly recreated a series of Johann Sebastian Bach keyboard pieces to form 1968's groundbreaking *Switched-On Bach* album for CBS, using a Moog modular system, many novelty Moog records immediately followed in its wake. The R A Moog Company expanded to 42 employees to cope with demand, but it didn't last long. An already saturated niche marketplace continued to bulge when rival electronics engineer Alan R Pearlman entered the fray with his more stable, cordless ARPs.

A change of tact was swiftly required, though Moog himself was reputedly none too keen on the idea of a portable, live performance-oriented synth. Nevertheless, a prototype Model A MiniMoog was built over a weekend by two Moog designers using basic pre-wired Moog 900-series modular panels, reworked into a walnut case. By 1970, the truly inte-

PolyMoog with the distinction of being the first fully polyphonic synth by virtue of its divide-down oscillator circuitry. It necessitated 300 engineering changes only to be completely blown away by Sequential Circuits' programmable Prophet 5 polysynth in 1978. As British synth pop pioneer Gary Numan once lamented: "The PolyMoog had one good preset in it called *Vox Humana* which is the high string sound heard on *Cars*."

Moog Music next struck lucky in 1980 with the Prodigy, a low-cost, two-oscillator non-programmable monosynth. Despite Moog's brave attempt at replacing the ageing MiniMoog with The Source, a radical and pricey programmable analogue monosynth with digital access control, the company's days were numbered; 1982's awesome MemoryMoog, an 18-VCO, six-voice programmable polysynth proved to be their swansong. Later models had MIDI, but to no avail.

Bob Moog's Big Briar remains quietly active, however; in 1999 they introduced their respected range of MoogerFooger analogue effects modules. What goes around, comes around; word on the street is that Dr Moog now owns the right to use the Moog and MiniMoog trademarks and, nearly 40 years after beginning his modular experiments, is working on a new analogue synth. **FM**



CORBIS

# No. 8: Moog synthesizers

## Moog Electronic Music Synthesizer

The one that started it all. The so-called Moog Electronic Music Synthesizer currently resides at the Henry Ford Museum Research Center in Michigan, USA. Just one copy was later made, and given to the University of Toronto. It was the prototype

for the MiniMoog. Check out [www.moogarchives.com](http://www.moogarchives.com) to see a genuine piece of musical history.

You could try making the museum an offer, but it's doubtful that you'll get very far. They do a nice line in Ford Model Ts, though!

## Moog modular systems

More than 40 of the 900-series modules were made between 1965-74. C denomination systems feature wooden cabinets; Ps are portable with carrying handles. Most Moog modulars are unique; a 10-VCO IIC would easily fetch £10,000. Today Moog Custom Engineering still offers authentic systems.



## MiniMoog

The Moog sound in a box. Possibly the most desirable monosynth of all time, on account of its unbeatable bass and searing lead sounds, 13,000 units were produced in an unprecedented 11-year production run. Priced at \$1,495 on its 1971 launch, today you'd be looking at £1,000-plus.

## Sonic Six

Moog's next commercial synthesizer release was a two-VCO duophonic affair designed for educational use and built into a carrying case (resulting in it later being dubbed a 'suitcase synth'). Portability aside, this is one instrument you wouldn't want to

take on holiday; priced at \$1,500 upon its 1974 launch, the Sonic Six has not weathered the sands of time as well as the MiniMoog, though its comparative rarity dictates a high second-hand asking price, if you can find one.

## MicroMoog

A low-cost (£895), single-oscillator, non-programmable monosynth with quirky pitch ribbon launched in 1975, aimed at those who could not stretch to a MiniMoog (but undoubtedly later wished they had). Second-hand pricing is tricky, though it was made during Bob Moog's tenure.



## PolyMoog

Incredibly expensive – to develop and buy (\$5,295 new in 1977) – brainchild of Moog designer (later Moog Music President) Dave Luce, the PolyMoog's main claim to fame is its fully polyphonic, touch sensitive, 71-note keyboard. An 'ex-Numan' machine was spotted online for £500. Mmm. Nostalgia anyone?



## Taurus

Another early (1976) Moog breakthrough: a semi-tweakable monosynth with a difference; primarily aimed at bassists on account of its octave's worth of bass pedals. Unsurprisingly, the Taurus pumps out an awesome bass sound. \$1,300 new, today's high price reflects its desirability among musos.



## MultiMoog

Basically a two-VCO 'stretched' version of the earlier MicroMoog, replete with touch sensitive 44-note keyboard for those nostalgic, expressive synth solos. \$1,595 upon its 1978 launch, given that only 1,000 were made in a three-year production run it commands a pretty healthy price tag.

## Prodigy

A keenly-priced (£295 in 1980), basic, two-VCO monosynth that went on to become Moog's best-seller after the MiniMoog, shifting 11,000 units and dominating the market until the release of Roland's SH-101 in 1982. Now they (unbelievably) change hands for around £400!



## Rogue

A fairly pointless cut-down Prodigy in effect: two VCOs are again the order of the day, though these are not fully independent and a simple envelope generator shared by filter and amplifier doesn't exactly help in sound sculpting stakes. \$595 in 1981, being a Moog (in name) it still commands good money.



## The Source

Yet another two-VCO monosynth; this sleek 1981-vintage model is programmable with 16 memories and features digital parameter access control instead of the (then) usual knobs and sliders fare, though this serves to limit its real-time appeal. Originally £899, expect to pay around £500.



## MemoryMoog

The MemoryMoog is a big, ballsy all-American programmable analogue polysynth, both in price (£3,676 at its 1982 launch) and size. Today you'd be looking to pay upwards of £1,000 for this desirable six-voice, 18-VCO, 100-memory beast. The later (1984) MemoryMoog Plus has MIDI, but can be unreliable.

Thanks to Roger Luther of MoogArchives.com ([www.moogarchives.com](http://www.moogarchives.com)) and Mike Bucki of Moog Music Custom Engineering ([www.moogce.com](http://www.moogce.com)) for vintage image sourcing and assistance; respect to Bob Moog at Big Briar, Inc. ([www.bigbriar.com](http://www.bigbriar.com)).