VINTAGE SYNTHS

M A R K   V A I L

THE EMS VCS3 & SYNTHI A/AKS

VITAL STATISTICS:

Produced: 1969 to present (out of production for a short time in 1980).

Total Number Made: VCS3, estimated 550; Synthi A/AKS, 850.

Manufacturer: EMS (Electronic Music Studios), Trondeal Vean Barn, Ladock, Truro, Cornwall TR2 4NW, United Kingdom. Phone 44-726-883-265. Owned by Peter Zinovieff from 1969 to 1979. Datanomics took over until 1983, when current owner Edward Williams stepped in.

Current U.S. Contact: Don Hassler, 1055 Lancashire Ct., Stone Mountain, GA 30083. (404) 292-4888.

U.S. EMS Servicing: Everett Hafner, EMSA (Electronic Music Studio, America), 11 North Main St., Williamsburg, MA 01096. (413) 268 3588.

Description: First commercially manufactured portable analog synthesizers (electronically identical), conceived by designer David Cockerell and avant-garde composers Tristram Cary and Peter Zinovieff. VCS3 comes in an L shaped hardwood cabinet for tabletop use; measures 43 x 44 x 42cm (roughly 16-3/4" x 17-1/4" x 16-1/2"), weighs 9kg (almost 20 lbs.). Synthi A is in a black ABS briefcase for portability; measures 48 x 38 x 12cm (roughly 18-3/4" x 14-3/4" x 4-3/4"), weighs 7.5kg (about 16-1/2 lbs.).

Features: Two audio oscillators (0.5Hz to 20kHz, one with sawtooth and variable-shape sine waveforms, the other with variable pulse-width square and rising- or falling-ramp triangle waveforms), an LFO (0.025Hz to 500Hz, variable pulse width square and rising- or falling-ramp triangle waveforms), noise generator, lowpass filter (18dB/octave, variable resonance, 5Hz to 15kHz, sine-wave oscillation), ring modulator, envelope shaper, dual spring reverb, joystick controller, signal level/control voltage meter, dual input channels (1/4" mono, mike, line, and CV levels), two outputs (1/4" mono, via VCAs for audio or pre-VCA for CV), headphone and scope outputs. Built-in stereo amplification/speaker system. Optional 3-octave duophonic DK2 mechanical keyboard with internal oscillator and velocity-sensitive dynamics, and 2-1/2-octave KS capacitive touch-plate keyboard and 256-event monophonic digital sequencer (fits inside Synthi A's lid, resulting in the AKS).

Insider Information: The VCS3 is better known in the U.S. as the "Putney," perhaps due to EMS's original address in Putney, a suburb of London. David Cockerell now works for Akai; he designed the hardware used in Akai's S1000 and S1100 samplers. Tristram Cary is a Professor of Electronic Music at Adelaide University in Australia. Composer Peter Zinovieff was taking "holiday" on a remote Scottish isle and was incommunicado during our research. Current EMS owner Edward Williams, a contemporary classical and electronic music composer, is perhaps best known for scoring music for television broadcast. Among his projects is the long-running nature series Life on Earth, narrated by David Attenborough.

Original Retail Price: VCS3, £330 (about $825). Synthi A, £198 (about $495). AKS, £420 (about $1,050). [U.S. dollar to British-pound exchange rate in 1971 was 2-1/2 to 1.]

Current Retail Price: New: VCS3, £1,450 (about $2,900). Synthi A, £1,375 (about $2,750). AKS, £1,675 (about $3,350). Reconditioned: VCS3, £850 (about $1,700); Synthi A, £800 (about $1,600); AKS, £988 (about $1,975). [Current U.S. dollar to British-pound exchange rate is 2 to 1.]

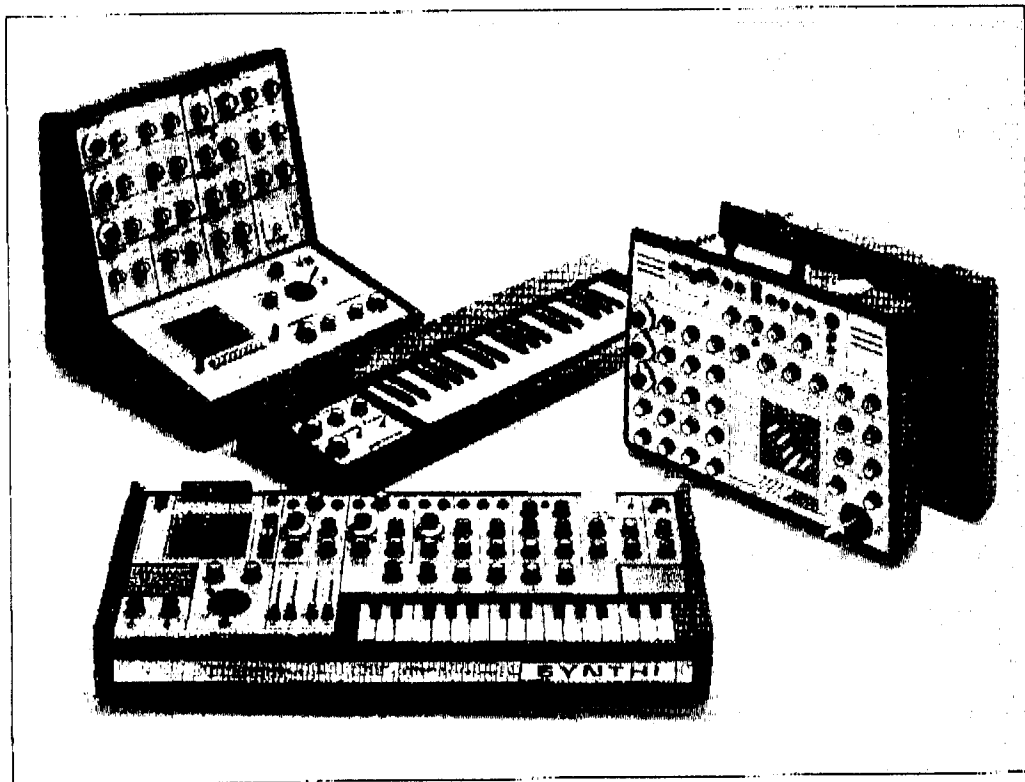**Current Street Price:** £250 to £500 ($500 to $1,000).

Although Brian Eno fingers his Minimoog in this photo (very similar to the July '81 Keyboard cover photo), the EMS AKS in the background was also dear to his heart. At that time, Eno told us about an interesting quirk that the AKS had developed: "If I feed a loud input signal into the ring modulator it will trigger the envelope. . . . It's very useful, because then you can use the envelope to trigger any other function in the synthesizer. . . . When I get it serviced I have to put little notes all over the thing saying 'Don't service this part. Don't change this.'"

W HILE MOST OF THE SYNTHESIS AT-tention in the late '60s here in the United States was focused on the creations of Bob Moog and Don Buchla (and soon thereafter, those from ARP), there was only one ballgame to follow in Europe. Out of an advanced—for 1969—computer-music studio in London came a tabletop modular synthesizer known here in the States as the Putney.

Developed and marketed by EMS, the VCS3—its true name, which stood for the volt-age-controlled studio, attempt #3—was tiny compared with its behemoth American counterparts. Instead of dozens of jacks spread across several square feet or more of front panel space, the VCS3 offered a tiny, square patch-board matrix. Whereas American synth modules were connected together using handfuls of patch cables, small pins were inserted into the VCS3 patch board to route control and audio signals through the device. "There was actually a very good reason for using that patch board," explains David Cockerell, designer of the VCS3. "We got a good deal on them surplus. We got a few hundred of them pretty cheaply."

Since 1965, Cockerell had worked for Peter Zinovieff, who'd purchased a DEC (Digital Equipment Corporation) PDP-8, the first mini computer, and put together one of the earliest computer music studios. According to Robin Wood, who joined EMS in 1970 and currently runs the company, "At least half of EMS was a very expensive computer studio where DEC computers were used to control prototype analog systems, not only for generating simple analog synthesizer sounds, but also for some sophisticated filter bank systems that could analyze sounds. David Cockerell designed a 64-channel analyzing filter bank. It was a bit like a vocoder, only it was all under computer control. The company was heavily into this kind of advanced computer research."

"There was a group of three of us," Cockerell explains, "Peter Zinovieff, myself, and Tristram Cary. They were both into avant-garde music, what you would call serious music in the classical tradition. It was toneless, and they thought the keyboard was of secondary importance. The VCS3 wasn't really a keyboard instrument to start with. We sort of added the keyboard on as an afterthought." The keyboard in question was the DK2, a three-octave, duophonic mechanical affair installed with control electronics in a wooden cabinet that matched the VCS3.

Portability was an afterthought as well. "The VCS3 was pretty awkward to carry around," Cockerell asserts. "It would have to be in a box as big as a tea chest. It didn't fold over or anything." By 1971, Cockerell had squeezed the VCS3 electronics into an oversized briefcase and the Synthi A was born. He also designed the KS, a 2-1/2-octave touch-plate keyboard with a 256-event monophonic digital sequencer

Though he cherishes his old friend the Minimoog, assistant editor Mark Vail often wishes it would fit in a briefcase like the EMS AKS. Then again, toting that Moog-packed Anvil case helped him build arm character.

This fit inside the Synthi A's lid. A combination of the Synthi A and the KS was called the AKS.

While Cockerell did all the designing, Wood was busy with other duties. "Half of my jobs were to do with keeping the studio in order: tidying, lining up tape machines, sweeping up, making tape copies. The other half was actually concerned with demonstrating the equipment to quite a lot of notable pop stars, who would come by and decide whether they wanted to buy something." Ready for a list of who-was-who in the European rock scene? Go ahead, Robin: "Pink Floyd, the Who [the organ on 'Won't Get Fooled Again' was processed with the VCS3's envelope shaper], Roxy Music [Brian Eno's band], King Crimson, Tangerine Dream, Klaus Schulze, Moody Blues, Curved Air, Jean-Michel Jarre, Gong, and Yes. Todd Rundgren [one of your own] used the VCS3; there's a good picture of it on the inside cover of *Something/Anything*. Many other groups bought EMS gear but never seemed to make use of it: Rolling Stones, Led Zeppelin, Fleetwood Mac, Jethro Tull, and Deep Purple."

Like the American analog synths of the time, EMS's oscillators tended to drift. "They were a bit dodgy onstage," Cockerell reports. "You had to keep tuning them up." Wood concurs, "They're rather temperamental with regard to tuning and pitch stability. People who used them onstage deserve a lot of credit for their bravery. If you wanted to use one with a keyboard in performance, you had to let it settle down for about half an hour before you could set the tuning. Even then, if someone were to open the door and let in cool air just before your lead solo, you could easily be in trouble. Lots of people used them live. Pink Floyd used them for quite a long time. But a lot of their stuff wasn't pitched; it was just effects. There were many applications where the machines were just used as effects generators. Jean-Michel Jarre is probably the best-known performer who still uses them. He's got six of them in a big rack."

Rock stars haven't been EMS's only supporters. "Educational people consider that the VCS3 has never been bettered as a tool for teaching people about sound processing, acoustics, and analog audio synthesis," Wood points out. "We've also got the jingle and effects professionals, broadcasters, people like that. There are younger enthusiasts who may have seen Jean-Michel with his enormous array of VCS3s, and they want to make sounds like he does. We get young musicians who have listened to early Tangerine Dream stuff, when they used a lot of VCS3s. We haven't only attracted people from the pop end. There have been young people influenced by avant-garde music, acid rock,

EMS's earliest analog synths, circa 1971. Clockwise from the left: the VCS3 Mark I with the DK1 keyboard, the prototype Synthi A (called the Portabella at that time), and the Synthi KB-1 prototype, which was sold to progressive rock group Yes. The one-of-its-kind Synthi KB-1 had, in EMS's Robin Wood's words, "an awful keyboard" with miniature keys and a scant 2-1/3 octave range.

or Jean-Michel Jarre."

Of all the synths we've covered in this column, only the EMS lineup of VCS3, Synthi A, and AKS is still being manufactured—albeit on a custom-order basis. In fact, they were out of production only briefly during 1980. And if you don't want to pay for a custom-built one, you can save a bit of money by ordering a factory-refurbished unit. But don't look for MIDI connectors. "We were asked by the shop that markets those rack-mount Minimoogs and Prophet-5 modules [Studio Electronics] to MIDI the VCS3 and put it in a rack," Wood recalls. "The trouble with that is it would take up an enormous amount of panel space. It would be a monster. None of it would be preset, you have to make all the connections for the audio and control lines, and you have to modulate all its controls in real time. It seems like too much of a sweat to start tinkering with the old design. Why not just tell people to go out and buy a MIDI-to-CV converter and keep the design the same, so as not to confuse the issue? It doesn't feel right to me, having one of them in a rack. Besides, the AKS is quite handy as it is."

Not that there weren't some design changes along the way. "The most significant changes came in early '72," Wood explains. "We call them the MkI and MkII. We're still on the MkII to this day. It has a redesigned power supply, which can deliver a lot more power in order to drive the KS's monophonic digital sequencer. The original design also used a different output amplifier. On the MkII, you can trigger the en-

velope using an external audio signal. When the amplifier reaches a certain threshold, it triggers the envelope generator, which wasn't possible on the MkIs. The patch-board matrix layout was also slightly changed. On the MkI, there were separate rows for the two oscillator waveforms: sine and sawtooth. You could route the sine wave to, say, ring modulate some sounds while sending the sawtooth off through the envelope generator to do something else. On the MkII, these are mixed together on one row."

According to Cockerell, there were electronic circuit changes as well. "In the first VCS3s, there weren't any integrated circuits. It was all done with transistors. That's my excuse for it not working very well."

Talk about excuses—check out Cockerell's modest explanation for bringing the VCS3 to life: "It was just a means of raising money for Zinovieff's studio."

CORRECTION

In last month's column on the Roland MC-8 MicroComposer, we incorrectly listed the release date for EMS's Synthi 100 as 1974. In fact, EMS delivered two Synthi 100s in '71: one to Belgrade Radio in Yugoslavia, the other to the BBC Radiophonic Workshop in London. Thus, the sequencer built into the Synthi 100 qualifies as the first TTL-based digital sequencer on the market, not the Oberheim DS-2 as we reported.