

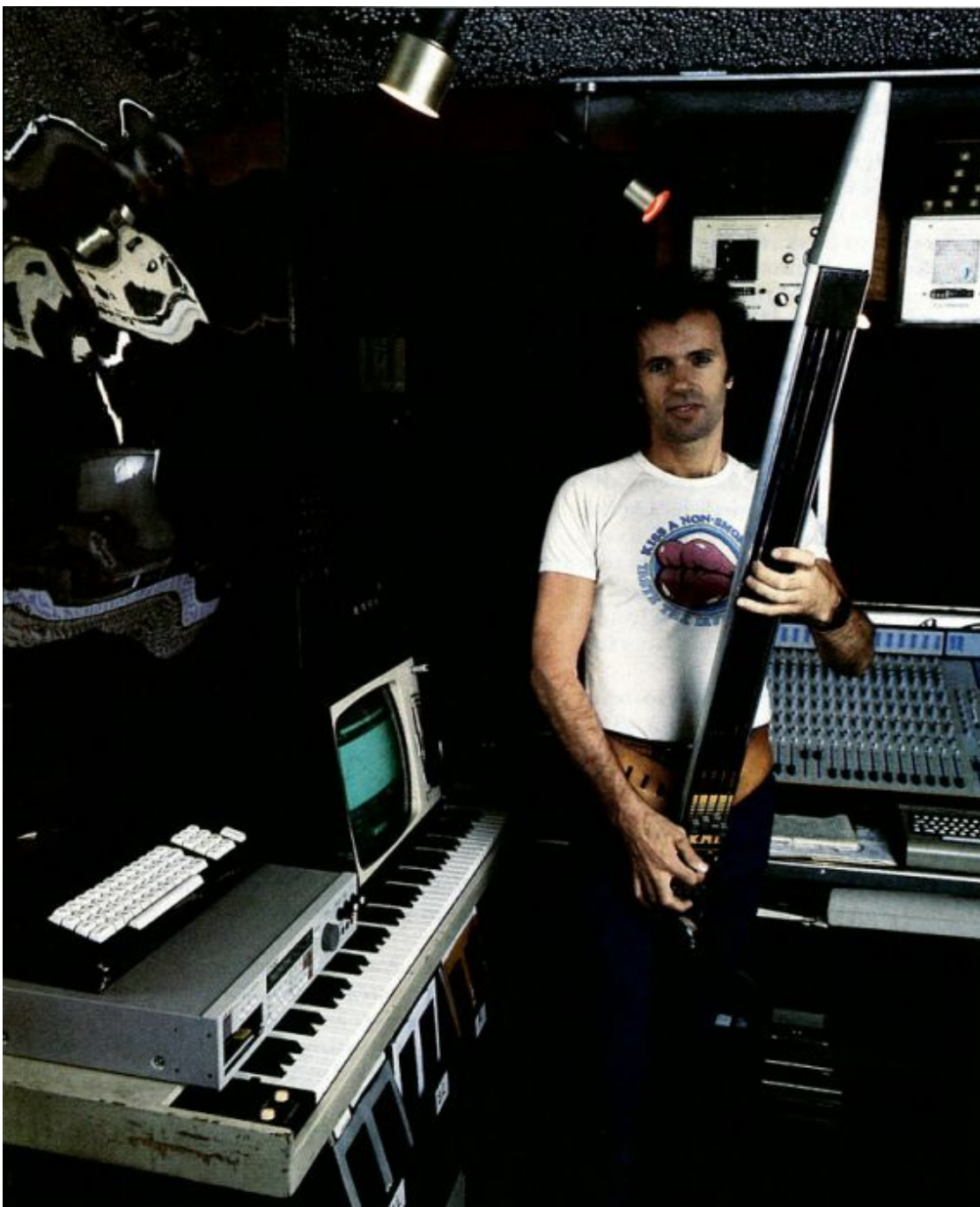
History of the Future Kaleidophon Studios | David Vorhaus

by **Simon Trask**

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Simon Trask travels to North London to visit one of Britain's longest-established synth studios, and to talk to its creator, electronic composer David Vorhaus.

Kaleidophon Studios is more than just a recording facility with some synthesisers in it. It's been the sound laboratory of one of Britain's best-known experimental composers, David Vorhaus, for the last 17 years.



In a top-floor flat in London's Camden Town, sits a synthesiser composer who recorded some of the most influential electronic music albums ever made; who bought the first VCS3, the first Prophet 5 and the first Fairlight; and whose recording studio — Kaleidophon — has been a source of consistent musical and technological innovation for 17 years.

The composer's name is David Vorhaus, and if it isn't instantly familiar, it should be. Because in addition to all the above, his extensive technical knowledge has enabled him to design and build some unique devices, including the Kaleidophon controller, the Maniac sequencer and numerous electronic 'modules' that were way, way ahead of their time. And even today, his wealth of experience puts him in the rare position to comment objectively on the progress of musical technology so far, and on where current trends might be leading us.

Yet he is decidedly unsentimental about past synthetic glories, and instruments have come and gone from Kaleidophon over the years. The current equipment setup is modest compared to that of a well-equipped, modern keyboard-based studio, but underlying this situation is a philosophy Vorhaus stoutly defends.

At one point in our talk, Vorhaus mentions he is thinking of calling his next album 'History of the Future' because 'it describes quite well the way I work'.

This, I decide, will be no ordinary studio report.

Early on in David Vorhaus' career, it didn't seem that music was destined to be his means of earning a living; although he played double bass in the London Schools Symphony Orchestra, his real ambition was to be a physicist. He went on to study physics and psychology at Aberdeen University, and then moved to London to study for a postgrad degree in electronics, 'attempting to keep out of the big bad world of nine-to-five jobs'.

It was while studying for this degree, in early 1968, that Vorhaus attended a talk at Morley College which changed his life. The subject was electronic music techniques, and the talk was given by Brian Hodgson and Delia Derbyshire of the BBC Radiophonic Workshop.

'You have to bear in mind that nobody knew about such things at that time, including me', Vorhaus admits. 'I had no idea about tape editing and stuff like that. This was long before the synthesiser was invented, and the way it was done was by splicing bits of tape together. Brian and Delia explained how it was done.'

Hodgson and Derbyshire were two thirds of a group called Unit Delta Plus, the remaining member being Peter Zinovieff of subsequent EMS and VCS3 fame. The group split three days after the Morley College talk, and Vorhaus joined forces with Hodgson and Derbyshire shortly afterwards.

Kaleidophon Studios began in 1968, with a commission to set up 'a modest electronic music studio complete with mixing facilities' for an electronic music composer who was writing music for a film called *Oedipus*.

'I remember we went out and bought all the equipment one day, wired it up the next, and then started work the day after', says Vorhaus.

This was in the aforementioned composer's Chelsea flat, but the studio subsequently transferred to Vorhaus' bedsit 'where some horrendous things happened'.

'We were working on a Ballet Rambert score which was very experimental for its time. We had some actresses from the Royal Shakespeare Company screaming, laughing and telling spontaneous stories of their first sexual experiences. We mixed these things and cut them all up — the tapes, not the girls. But it did sound like we were doing horrible things to the girls. We were playing these tapes at three in the morning, and suddenly the police were banging at the door and smashed their way in.'

A neighbour had phoned the police to say a girl was being raped.

Matters didn't improve when the landlady arrived and saw the state of her bedsit (Vorhaus was also building a mixing desk there at the time), and when two neighbours died within the following week ('one was very old and the other had cancer', Vorhaus insists), the intrepid experimenters were given 48 hours to quit. And you thought you suffered for your art...

Vorhaus and his colleagues then chanced upon that top-floor location in Camden Town, and Kaleidophon Studios (together with Vorhaus) has been there ever since. Another stroke of good fortune came in the form of £3000 from Island Records' Chris Blackwell, who had heard some of their music and wanted them to make an album.

'The money financed building my first mixing desk and purchasing further Revoxes. The way multitracking was done was with four Revoxes in a row, each stereo and all locked together with one remote switch. That way we had four two-track tapes running together as an eight-track. Sometimes we'd even have a Brennel making 10 tracks, and an Akai making 12 tracks. It all worked fine and was the only thing that existed then, so we didn't complain that we had to rewind four or five machines separately and set them up each time.' The resulting album was *White Noise 1* — Island's longest-selling record, according to Vorhaus. After a rather slow start, the record has sold over a quarter of a million copies, and is still bringing its composer healthy royalty cheques. Vorhaus also reckons it should have a place in the *Guinness Book of Records* as the album with the most tape edits.

'It still sounds quite fresh', he says, 'because very few of the sounds have been made since — unique devices, special frequency shifters and feedback loops, and a lot of concrete sounds. Actually, a lot of it could be done with sampling machines. People think that sampling is something new, but we were using sampling machines in 1968.'

We had a machine which would sample for 90 minutes with very good signal-to-noise. It was called a tape recorder.'

Vorhaus is the first to contrast the healthy sales of *White Noise 1* with the much shorter lifespan of its successor, *White Noise 2 — Concerto for Synthesiser*, which sold 30,000 copies in its first week of release, yet was deleted a couple of years later. It was the first synthesiser album available in Europe (being recorded primarily on two VCS3s), and as such generated a great deal of interest. But then synthesiser albums became more common, new synthesisers came along, and the VCS3 (and *White Noise 2* with it) began to sound painfully dated.

Hanging from one wall of Vorhaus' studio are two VCS3s. The composer points to one of them. 'That was the very first synthesiser in Europe, the 001 VCS3, made in '72. It was all assembled on veroboards by David Cockerell's lillywhite hands. Every single component was hand-tested, and it's never gone wrong. The other one is off the production line. For a long time they were the only synthesisers in Europe.'

Yet far from being a techno-freak eagerly lapping up every 'innovation' the music industry can churn out, Vorhaus is a cautious man who remains adamant that only the big steps in technology are really important. And it's this attitude, strangely enough, that's kept him ahead of the pack while his contemporaries have been preoccupied with other, less significant developments.

'The big steps were the tape recorder, then the VCS3 which was monophonic and not programmable, then the Prophet 5 which was polyphonic and programmable, and then of course the Fairlight. Really, everything else that came out at each stage was essentially the same. It doesn't matter whether you're talking about Prophet, Oberheim or the Polymoog.

'I only do a solo album once every five years, which isn't a case of laziness. The idea of doing them is that when there's a change in technology, I'll explore the new technology through doing an album.'

Thus, while the first Vorhaus album explored tape manipulation and the second album explored the VCS3, *White Noise 3* tackled the Prophet 5, with some Fairlight on one track. A subsequent album of library music was recorded solely on the Fairlight.

'The only way to discover how to really use something like the Fairlight', Vorhaus says, 'is to do a whole album on it. You need time to discover what such an instrument is really good for, as opposed to just using it to create poor synthetic imitations of existing acoustic music. Working on a session, where you've got perhaps three days to come up with a specific result, you just can't do that.'

Acquiring the latest synth technology hasn't always been an easy process for Vorhaus, but when you've got to have it, there's always a way...

'I remember we had a rush-job commission from a Japanese record company to do an electronic version of Superman. They were going to pay us £4000 a week to do it. We really needed a polyphonic programmable synthesiser, and it so happened that the Prophet 5 had just come out, so we decided to go for it. Literally a week's work would pay for it.'

Trouble was, there was only one Prophet in the UK at the time, not to mention a six-month waiting list. But after some creative queue-jumping (over which we'll draw a discreet veil), Vorhaus had in his possession the very first Prophet 5 in the country.

'The Prophet allowed us to do in a day what would otherwise have taken us two weeks', he recalls. 'The VCS3 was monophonic, so to create chords you needed several tracks. And to get the sounds (which of course weren't storable) just right, you needed to make really critical fine adjustments. Once you'd got the sound just right on the Prophet, you could store it in memory for instant recall. I think that advantage applies even more to the DX7. Thank God for presets there — goodness knows what state we'd be in otherwise.'

Vorhaus came into contact with the Fairlight through meeting the company's Peter Vogel at an Ars Electronica electronic music festival in Linz, Austria. Vorhaus was demonstrating his Kaleidophon controller and Vogel was demonstrating the Fairlight. The two of them ended up as joint winners, Vorhaus because the Kaleidophon was a new means of controlling sound, Vogel because the Fairlight was a new means of generating it.

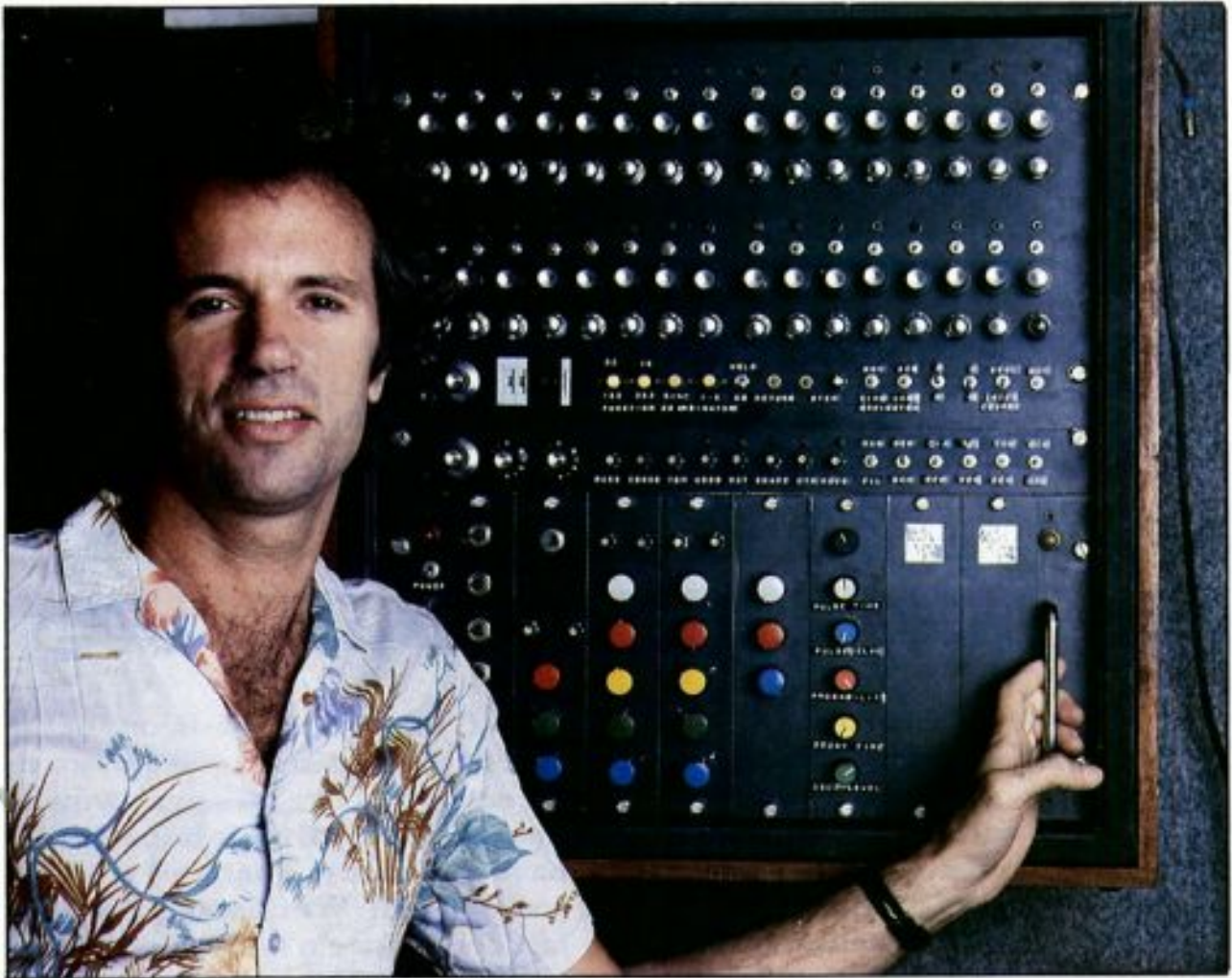
Yet curiously, it was also at this time that Vorhaus decided his instrument-designing days were over.

'Up 'til then I'd spent half of my life designing equipment and the other half making music, but after I'd met Peter I felt that from then on, he could do all the designing while I could spend half my life making music and the other half on holiday in Australia!

'...I guess I developed the Kaleidophon because I wanted to play like a bass player, but with electronic sounds — essentially it's an electronic string bass for controlling CV synthesisers.

'I never really liked keyboards. I use the keyboard like an 88-note calculator to figure out harmony and stuff. Unfortunately, when synthesisers first came along they were all controlled by a keyboard, but in fact the keyboard is a silly mistake. It's brilliant for playing chords but not good for much else, and adding thumb wheels and so forth hasn't really helped.

'On the Kaleidophon, the strings are elastic on one side and conductor on the other, and where you hit the string defines the pitch in voltage terms. It's a three-layered device dynamically, so the harder you hit the string, the louder or brighter the sound. You can slide around on the strings and do things to notes that you can't do with a keyboard.



'The Kaleidophon definitely has a soul. I think the reason why electronic music has so often been called sterile isn't because it's electronic, but more because it's played on a keyboard. The guitar and the saxophone also have more soul than a keyboard.'

Vorhaus' other (in)famous invention, the Maniac sequencer, came into being because 'although the Moog voltage-controlled sequencer had just come out, it could only play a 16-note riff. There was no pitch correction, and all the notes were the same length. What's more, it cost £3-4000, which seemed overpriced. I felt I could make something for an awful lot less, and why not make a whole group of them that could interact? You could have, say, one 64-note sequence or four 16-note sequences, or any other combination. And why not have one sequence controlling another through adding and subtracting voltages? Everything was voltage-controlled, then, and

there are still advantages to voltage control. And why not be able to mix sequences of different lengths?'

Maniac's front panel has switches for each note, allowing you to switch notes in and out as a sequence plays. Pitch and duration of each note are entered from the front panel, and you can 'play' the sequencer in real time. There's even a feature delightfully labelled 'Time Warp Navigator', which allows Maniac to keep playing in a steady time — 4/4, say — even when you're switching notes in and out, by adjusting the durations of existing notes. As a last point of interest, you can also set the sequencer to improvise...

'It's a brilliant way of discovering good lines', says Vorhaus. 'And it's not completely random because you put in an underlying set of parameters. The beauty of Maniac is that it will run through all the possibilities, and your job as a composer is to sit there and select what is particularly good. You can end up taking a minute to discover what might otherwise have taken you days.'

This turns out to be an area Vorhaus is paying a lot of attention to in his new-found role as a 'prophet' for Akai. Vorhaus landed the job through David Cockerell, inventor of the VCS3 and currently a designer for Akai (the S900 is his work), but what does it actually entail?

'I'm looking at equipment of the future — not next year's model, but the sort of thing that might be around in 5-10 years' time. What will musicians want then? I guess my role with Akai is to say what's wanted from the musicians' point of view, at the same time with enough electronic knowledge to see what's feasible and how it might be done.

'I think what's very relevant is how we will think things up. Now we have many programs that will score your music for you as you play it, and then play it back for you, but there's nothing that actually helps you with any aspect of composition. For instance, imagine that you could enter the parameters you want for a particular part — a funky bassline, say — and then get the computer to run through

perhaps hundreds of results. Maybe number 33 is just brilliant — Stevie Wonder! That'll be the way.

'It's all a matter of getting the parameters right, but once you've done that, you can come up with the kind of thing you're looking for pretty well straight away. What is rather frightening is that once you've come up with one result, you can churn out 20 more in another 20 minutes.'

Something else that frightens Vorhaus is the wealth of sounds available to musicians nowadays. Far from revelling in the prospect of having such a huge library of material at his disposal, this particular 'prophet' isn't so sure it's a good thing to have at all.

'In classical times there were only about 12 different instruments, and only a limited number of people who had acquired a tremendous amount of skill could put these instruments together successfully. Nowadays there's virtually an infinite number of sounds, and the problem is that you can't keep them all in mind. It's hard enough to know what instrument to use, let alone which samples.

'I found this with the Fairlight, which is a microcosm of the whole situation: the library just grows and grows until you're using one per cent of it. That's not because all the other sounds are no good, but because of our mental limitations. With the DX7 I've gone through just about every available sound library and picked out maybe one per cent of the sounds. Then I've compared them and cut the number down further, and ended up with about 150 sounds which really are good.

'When manufacturers say something like "the only limit is your imagination", it's a nice phrase to sell something, but in practice such ability can be a big disadvantage. I'm trying to cut down on my sound library, to keep it as small as possible. If you know how to use a few sounds inside out, it's much faster than having dozens of sounds and not knowing how to get easily to the ones you need.

'Of course you can already get lists of sounds, and ask for a sound by name, but I'm talking about being able to ask for sounds which will work within the context of a particular piece of music. That's quite difficult, but there's got to be a way of using computers, which are great sorting devices, to help choose and locate the kind of sounds you want.'

Vorhaus is keen to keep Kaleidophon's instrument list down to a minimum, too.

'In a way my philosophy is the opposite of the big studios. I was in a £700-per-hour studio the other day putting a video together. Their philosophy is that if anything exists, then they should have it in case the client wants it. My philosophy is that if one thing will do the trick perfectly, then why use other things as well? I'd rather go for the minimum number of synthesisers I can have, as long as I can make any sound I need — the idea isn't to have a showroom.

'But video studios are expensive. The basic rate is £240 an hour, then there's a further £200 an hour for additional digital effects, then another £200 an hour for Quantel. I thought I was expensive, charging £45 an hour!

'I want to lock my 24-track to picture, and there are some packages coming out now for around £2000 that I'll be looking into. When I have that sorted out I'll be able to do 24-track mixing to video, and be able to offer all the facilities of the Fairlight and the other instruments; there aren't many places that can offer all that.' Not surprisingly, Vorhaus' array of instruments has been carefully chosen to give him a broad range of sound possibilities.

'What was new about the PPG Wave was that you could store sounds digitally and then treat them in an analogue fashion. That type of control was what I missed on the Fairlight; analogues aren't dead just because Fairlights come along. In fact, in one instrument (the Wave) you had more of everything you couldn't do on a Fairlight than anything else. But I didn't bother with the Waveterm; it certainly doesn't have anything to add to what I've got here.'

Ever keen to make use of the strongest points of an instrument, Vorhaus uses the Greengate DS3 sampler as a sampling drum machine, leaving the Fairlight free to handle 'big fat' sounds. The DS3's shared sample memory makes it handy for storing a lot of short (ie. percussive) sounds, whereas the individual sample memories of the Fairlight mean that percussive samples don't make the most efficient use of the instrument.

'I was actually thinking of getting a drum machine, but then I came across the DS3, which is a million times better because you can make any drum sounds you like, along with any other sounds. It's a bit like having another Fairlight just for drums. For composing it's nice to have the drums there to help you figure things out as you go along, before committing yourself to tape.'

As for that Prophet 5, it eventually went to a friend who was setting up a studio in Korea.

'A lot of my past instruments have gone off to various well-intentioned friends. Now the Wave will do what the Prophet 5 could do; it's just that when the Prophet first came out it was head and shoulders above everything else.

'I'm cautious about getting the Series III Fairlight. There's still an enormous amount of software to be finished — MCL, for instance. So right now, the II is more powerful than the III. The main advantage that the new Fairlight has at present is the bigger and clearer 16-bit samples, but I can get a clean sample out of the Akai S700 which is 12-bit, and then I might get the new Greengate DS4 which is 16-bit. It's more the control of MCL that I look for. Hopefully by the end of the year Fairlight will have everything done, so there'll be the 80-track sequencer which will be great, with its ability to control everything via MIDI.

'I'll wait 'til the end of the year before deciding. There are so many new things coming out that it's not a bad idea to wait and see what can be put together.

'The way we remember instruments and their sounds is interesting', the composer muses. 'People often talk about there being nothing like that Minimoog bass sound. That's a lot of crap, because almost anything will do it. What is special is our memory of the sound; when people first heard Minimoogs they were so amazed because they'd never heard anything like it before. What we want to do is recapture the memory of that experience, not the actual sound.'

But away from sound-generating machines, Vorhaus has also invested in a Steinberg Pro16 MIDI sequencer for the Commodore 64, and sees no incongruity in having both a Fairlight and Pro16. It seems the sequencers at his disposal (Pro16, Page R and MCL) are each suited to different musical approaches.

'It just seemed well worth getting into instruments other than the Fairlight, and getting into other ways of playing. The Steinberg has a lot of limitations, and it can only do fairly simple kinds of music, but it's incredibly fast at doing them — even faster than the Fairlight. And of course it's polyphonic on each track, which the Fairlight's Page R isn't, and you've got command of far more voices from the Steinberg.'

Vorhaus uses Pro16 to control a DX7, a TX7 and the DS3. The Fairlight isn't MIDI'd, and its owner asserts he hasn't found an instance where he wished it was.

Now he's looking into the possibility of expanding his MIDI sequencer setup with C-Lab's SuperTrack, and software for both the Atari ST and the Macintosh.

'The trouble is I'm so busy at the moment, and a sequencer isn't like an instrument or a piece of outboard gear, which you can get used to pretty quickly. You've got to spend some time getting familiar with each new sequencing program.

'Having said that, it's useful to be able to offer a variety of sequencers that people are also using at home. For the first time, we're talking about the possibility of someone doing up to 95% of

their work before coming into the studio. They can then take advantage of all the instruments and effects, having already prepared their music. That way, a lot more people will be able to afford to use a studio, and that can only be good for encouraging new talent.'

To explain Vorhaus' earlier comment about lack of time: most of his working hours are currently spent working on film, TV and library music.

'Commercials are getting more interesting now, though they were a dirty word once. Sponsorship in general seems to be what's going to happen within the capitalist system, whether we like it or not. Unfortunately, the best sounds are going to be on commercials because that's where the money is — that's where people are willing to spend the time and the money to get it right.'

Recent work outside the commercial field has included the music for a new Channel 4 series called *Equinox*, a video arts programme *Ghosts in the Machine*, and a programme on jazz musicians entitled *Individual Voices*.

Vorhaus' entrée into the world of library music came as a result of a BBC programme on the history of electronic music called *The New Sound of Music*. In it, he demonstrated the Maniac and the Kaleidophon, and played some of the music he was working on. After the programme was screened, Vorhaus got a phone call from Peter Cox, head of KPM, who said he should be doing film music.

Cox gave Vorhaus a detailed brief on what he wanted, and Vorhaus came up with all the tracks plus one more; the extra track went on to make more money than all the others put together, and Vorhaus has now been given carte blanche to do what he wants. Whatever he records, KPM will release it. Now that's what I call an enviable position — even if David Vorhaus has done more than enough to deserve it.

Selected discography

White Noise 1 (Island 1969)

White Noise 2 — Concerto for Synthesiser (Virgin 1974)

White Noise 3 — Re-Entry (1979)

Instruments

Fairlight Series II, PPG Wave 2.2, Yamaha DX7 and TX7, Greengate DS3, EMS VCS3 x2, Kaleidophon, Maniac sequencer, Steinberg Pro16 MIDI sequencer

Outboard

Yamaha SPX90, Yamaha REV1, Rebis parametric EQ, custom-designed delays, flangers etc

Recording

Soundcraft 24-track, AHB CMC32 32:24:2 console

Rate £45 per hour including VAT