

## Tim Souster — Electronic Music Composer

**Tim Souster**

Electronics & Music Maker - May 1981

Tim Souster's interest in electronic music began at an early age when experimenting with sound through ring modulators. The sounds he used were from traditional instruments. His use of electronic devices as treatments led to further experiment over many years with synthesisers and computers for the process of making electronic music. His involvement with such composers as Stockhausen, Berio and Henze inspired him to form his own electronic music groups, "Intermodulation" and then later "odB."



Since his educational background never really concentrated on mathematics and electronics, he has not found it easy to tackle the technical aspects of producing electronic music, but like so many musicians today has learnt through the job of composing what his electronic instruments can do. His visits to Stanford University in

California to study electronic composition at the now world-famous Center for Computer Research in Music and Acoustics posed quite a problem when he found that trigonometry was part of the course work! Tim comments that 'very often there are people who can invent machines or processes on the back of an envelope with a few equations and prove to you logically that it will work, but in fact couldn't make the machine work in a month of Sundays.'

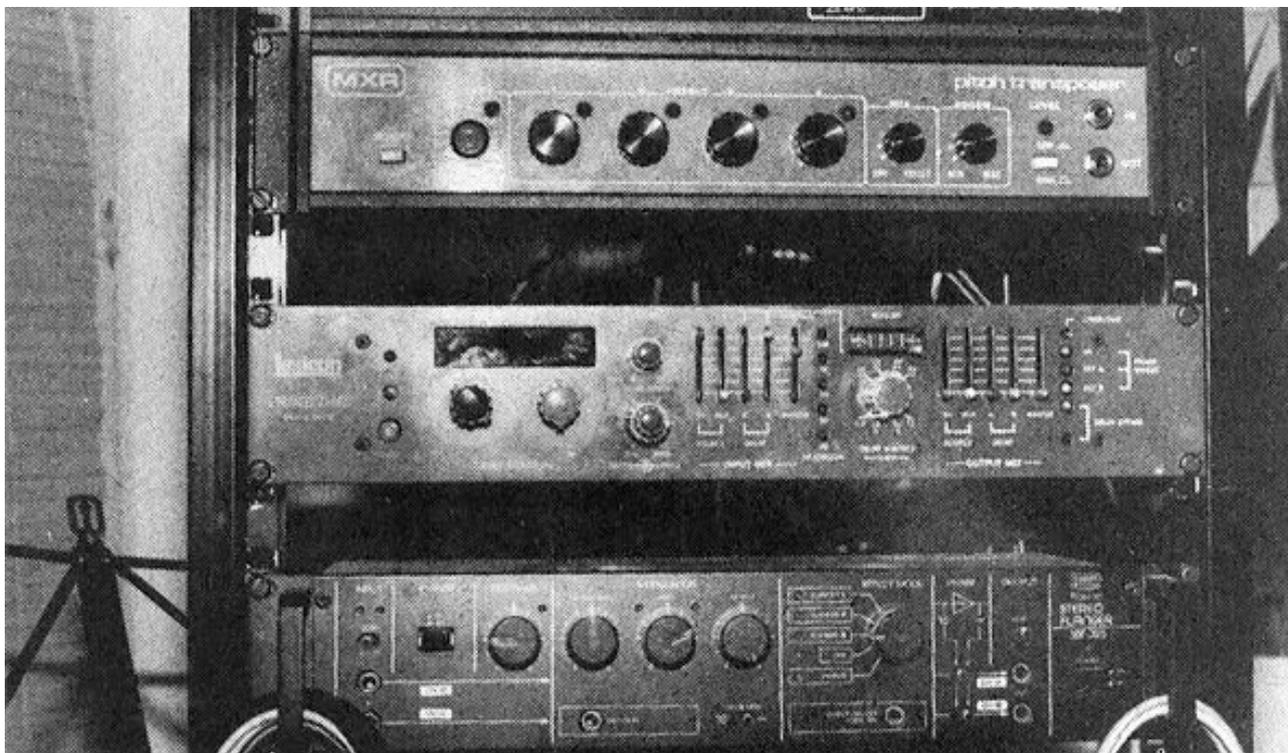
He feels that his own forte is being pragmatic — he couldn't say how a particular transistor or IC is functioning, but if he has an electronic instrument to use he will exploit it intuitively, in an applied way. For example, with his present modular synthesiser system he gets a feel for what the sections do by experiment.

Serge Tcherepnin designed this complex system for him, which can be provided in kit form to your own specification. Having chosen the configuration of each panel, the panels and complete units are built up in San Francisco by the Serge company and then sent to the buyer. Tim preferred, as you might guess, to have the units pre-wired at the factory. He finds the system extremely versatile with virtually all the functions voltage controlled — including waveshaping, phasing, depth of modulation, portamento and ring modulation. One module he's waiting for is the digital control unit which gives 32 simultaneous control outputs enabling him to do a lot more pre-programming.

Tim moved from Cambridge to London last year having given up teaching to become full time composer, and as he says, 'You can't really do that unless you're a Peter Maxwell Davies or Richard Bennett!' A few years ago he met Laurence Aston, at the time working for Transatlantic Records but now running Original Records. Tim wrote the music for the 'Hitch-Hiker's Guide' albums which were produced by Laurence and have been very successful, showing his approach to a more commercial style of composition and this helped financially with getting the studio started.

Another piece of music that was successful was "Soundtrack at the British Genius Exhibition" for an exhibition at Battersea Park in

1976. This piece was an audio/visual soundtrack in 5 channel playback and this is currently another area of his 'bread and butter' work. Having established a firm source of income, Tim is now doing more original material in his own studio entirely using synthesisers.



The treatments rack.

So his day-to-day work as an electronic music composer can be of a more commercial nature, such as arrangements of rock and popular music, or they can be his more serious compositions. He obviously hopes that one will pay for the other and points out that he doesn't want to work exclusively with electronic sound sources because parallel to his studio work he still writes a lot of music for concerts. He much prefers live works and sees tremendous potential in the combination of the sound world of electronics with the live gesture of performance. He recently wrote a piece for "Electric Phoenix," an interesting vocal quartet that use their own electronic set-up of ring modulators, filters and analogue delay line devices. The music was for 4-voice performance integrated with 4-channel tape recording in Tim's studio. Thus his work always comes back to electronic resources in some shape or form and like most electronic compositions is always a one-man job.

Because of Tim's limited background in electronics he has had a lot of help from Turnkey, a London company that specialises in setting up studios. An important item from them was a "patch bay" rack that allows signal lines to be interconnected from one central point very easily. Serge also built for Tim a special interface module on the synthesiser that matches up triggers and control voltages in the various electronic equipment.

## **Instruments**

Tim points out that all the units themselves are 'nothing new in particular but it's the interconnection of each to make a unique combination that is important. There's the Roland JP4 and Vocoder Plus VP330, which I find fantastically useful — especially the vocoder for treating other instruments. I'm not just interested in singing and playing into it but like to feed in another synthesiser as the program source whilst putting pre-recorded voices from tape into the mic input. This enables me to build up multi-channel voices in advance — I did this in my vocal piece for Phoenix. First I recorded the singers on to the 4-track Teac and then fed the composite signal through a D.I. box into the mic input of the Vocoder. The keyboard is by-passed with an external source such as a noise output or complex wave shape from the Serge synthesiser and you can get the most incredible sound colour mixes — it's something that I want to investigate further.'

'Then I use the trusty old Mini-moog which I've always used from my "odB" group days.'

Tim stresses that it is important for him to have several instruments that offer a range of completely different sound sources — in fact, he often wakes up in the middle of the night with a new idea for interconnecting different synthesisers, and then he falls asleep again and forgets it, only to spend next day trying to remember it again!



The main keyboard rack

Another instrument he uses a lot is the Roland MP700 Electric Piano, nearly always adding some kind of treatment to its sound from a flanger or graphic between the piano and its cabinet amp, before the chorus effect even gets on to it. Then when it reaches the mixing desk he often uses it on foldback to a pitch transposer (or harmoniser), simply to thicken the final sound rather than change pitch. There's a parody of a heavy metal band on one track of the second Hitch-Hiker album and this was all done on the Roland piano with a fuzz pedal!

Finally, his Serge synthesiser completes his sound making instruments and provides all the extra sound effects he needs. Certainly, for Tim, the overall concept of this synthesiser provides an immense range of possibilities and he finds many of its effects quite difficult to control — 'It's more for experimental music because you can set up a patch and listen to it do the most incredible things.' The patch cords are also a good idea, for they terminate on banana plugs that slot into each other so that you can send a single control voltage to several modules without having to use multiple jack-linked sockets. There's a touch-activated keyboard sequencer that is laid out as 16 x 4 small printed squares that have more than one layer of c.v. outputs, so you can join up the sequence

lines to play in parallel or serial format and specify the reset point. There is a control pot for each square to set its pitch over the whole audio range.

This part of the Serge can be used to control his MXR Pitch Transposer so that any music signal going through the MXR can be raised or lowered in semitones by touching the appropriate squares.

It's interesting that all these items are commercially available and that Tim's own style is formed in many respects by the precise way he uses them, although there is obviously a degree of customisation in his interface facilities.

Tim's main instruments are keyboards (originally piano and church organ) and viola. He recognises that for musicians using multiple keyboard set-ups, feet are almost as important as hands, especially if you can play a pedal-board.



The recording area

## Treatments

One 19" rack holds the three main devices used for extra treatments — first, the MXR Pitch Transposer, an instrument similar to the well known Eventide Harmoniser. 'It does what its name suggests, putting any type of audio signal up or down in pitch and works very well providing you don't jump too big an interval — even a 5th up you'll hear that the sound has been treated because of the limited sample rate and the way it regurgitates it with a slightly metallic edge. Nevertheless, its voltage controlled input is great for modulating pitch via a synthesiser and it can completely transform speech and music. Pitch intervals are dialled up from four very useful touch-sensitive control presets, either in semitones or as a ratio to zero (normal pitch), and these allow rapid transposition during a piece. A 'Regeneration' control then gives variable feedback resulting in interesting chains of transposition.

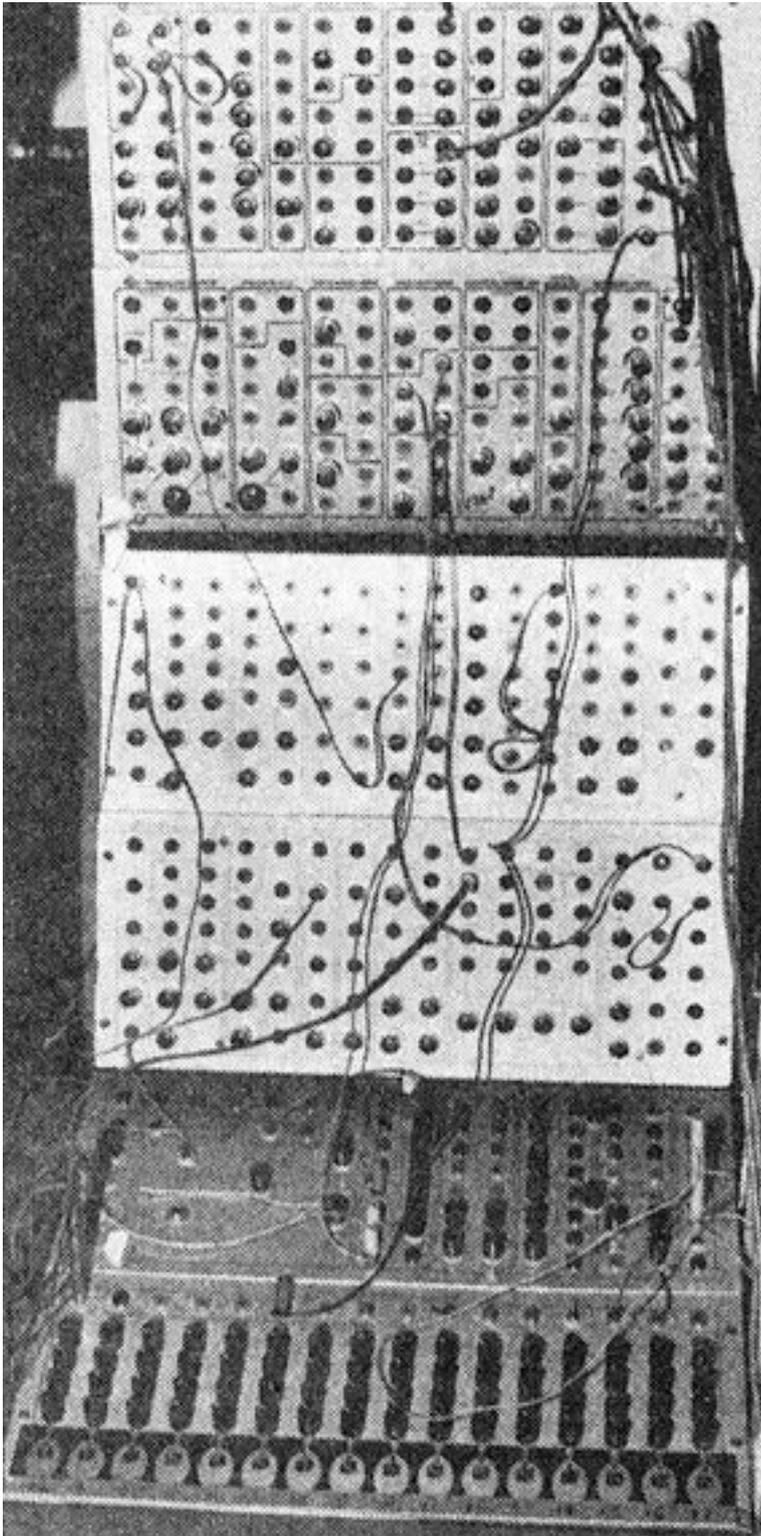
Next there is the Lexicon 'Prime Time' digital delay unit — an expensive item but essential as far as Tim is concerned to give to separate time delay outputs from one input signal. It can also bounce outputs from either or both of the two available inputs from one channel to the other. He got a liking for this sound as a means of producing artificial echo from using a modified Rexox when he was at Keele University. It was a mod suggested by David Allen, late of 'Gong' and Soft-Machine.'

There's a Roland Rack Flanger he likes for synthesised bass that was used on the Hitch-Hikers LPs and numerous other effects boxes dotted around the studio. A 'Great British Spring' from Turnkey hangs on the studio wall and provides all his main reverberation. The Serge synthesiser is very much a multiple effects box as well, with its V.C. wave multipliers and phasing.

The mixing desk he uses is a Soundcraft Series 2, 16 into 8 and accounted for quite a lot of his costs in setting up the studio.

Sound amplification comes from a Quad 405 stereo amplifier and a couple of JBL 4313 speakers. In addition, a back pair of KEF

speakers are used for monitoring when working on four channel pieces, powered from a Quad 303 amp.



The Serge Synthesiser

Most of Tim's classical work is conceived in quad and he is much in favour of surround sound, however it is produced. 'The artistic potential of it is still practically untouched in popular music and for

concert performance of electronic music multichannel production has been common-place over many years.'

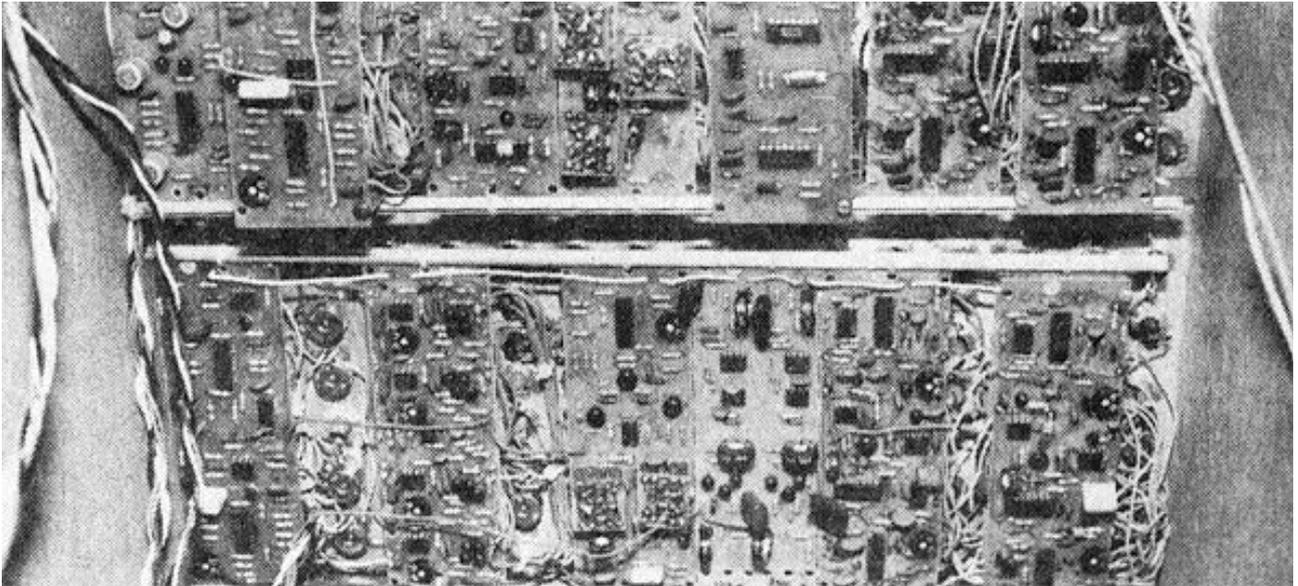
Tim has had to purchase all the studio items himself — a big outlay these days — and has not been able to skimp on the quality of equipment because it is not practical to re-record electronic music, except for the final mixdown which could be done in a recording studio situation. He confesses that he has been known as a "strange avant-gardist" and only recently has turned his composition towards more "accessible" rock music. He's not too pleased that he has been forced to make this move and feels that the spirit of adventure should always be present and must be acceptable for new music to develop, rather than simply aim at cast-iron certainties.

He likes to use the oscilloscope to check waveshapes and other synthesiser functions, although he relies on listening to check for correct levels and distortion.

## **Recording**

The Teac Tascam 88 8-track recorder is used to lay the tracks, with DBX noise reduction added. When these are filled, Tim often puts a rough mix onto the Teac 4-track which has its own DBX system and then these 4-channels are dumped back again onto the 8-track leaving another 4 tracks ready for further use.

A digital multiplex clock gets over the problem of auto locating tape cues by sending a digitally encoded pulse signal to track 1 of the Tascom (every second or 1/2 second) which will then play back off the tape (so it's ideal also as a click track) and return to the clock for display as a 4-digit reference number.



Inside the Serge kit

The final mix is made in stereo on the Revox B77. For any work out of the studio there's a stereo portable: the JVC KD2 cassette recorder, with ANRs and super ANRS. Some Accessit boosters are used for matching the 8-track level to the Soundcraft mixer during monitoring.

In terms of experimenting with synthesiser control during recording, Tim has been trying out the Roland 'Dr. Rhythm' box. This has two pulse outputs that he can dump onto tape and then he uses these to control the Serge functions and synchronise effects.

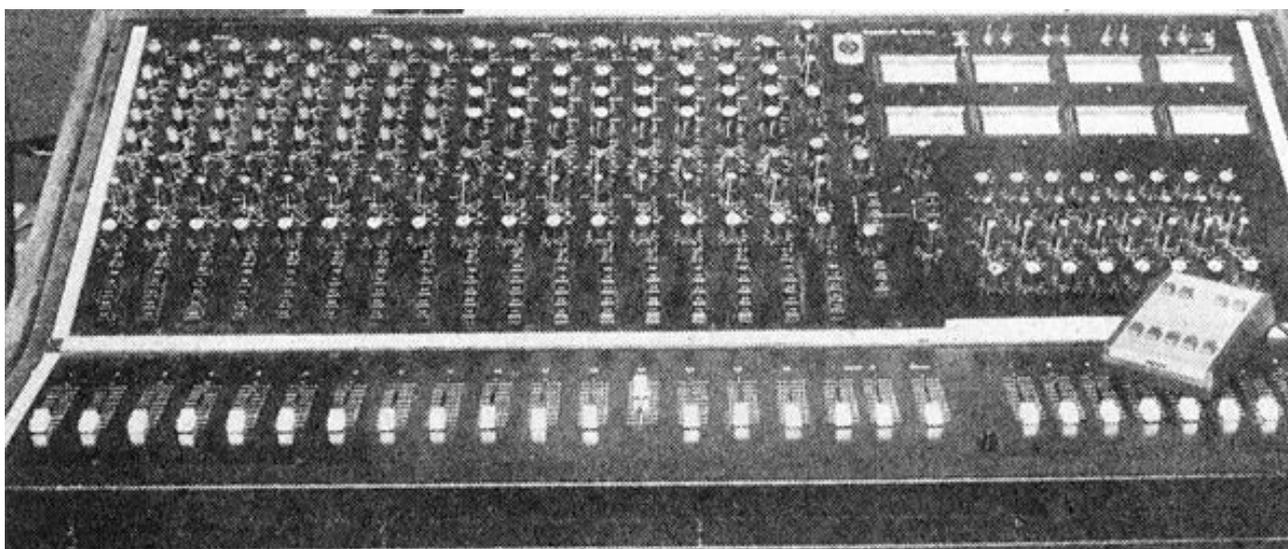
## **Composition**

'Interfacing is a prime part of creativity' agrees Tim, 'making connections between things is like composition itself. The very word "composition" means "putting things together." In counterpoint and harmony, putting together the notes was the key thing. In electronic music it's finding new circuits and new ways of connecting different sound making devices. After all, some of the early experimental American composers, like Frederic Rzewski and Gordon Mumma, always used to say that soldering the first jack plug was all part of the piece! What you have to be careful about is that you don't get swamped so much in technology that you're always developing a

device that will do some fabulous thing and you never get time to actually use it. So I tend to buy off the shelf and concentrate on the business of composition.'

Since Tim took part in the performance of Stockhausen 'Sternklang' we've reviewed in this issue, I asked him about it.

'It's one of those scores where the parts can be realised in lots of different ways — the proviso is that each singer or player has to be able to produce and filter the overtones of their sound. It's really an extension of the work called 'Stimmung' (Tuning) which is for 6 voices and uses a vocal technique of producing overtones in a whole series above the fundamental note. In Sternklang, exactly how the sound was produced was immaterial — you could have a trumpet with a wah-wah note through a pick-up and other people were using EMS VCS3 synthesisers. I was using a viola with a pick-up and a VCS3 filter.



Soundcraft Series 2, 16 into 8 mixing desk

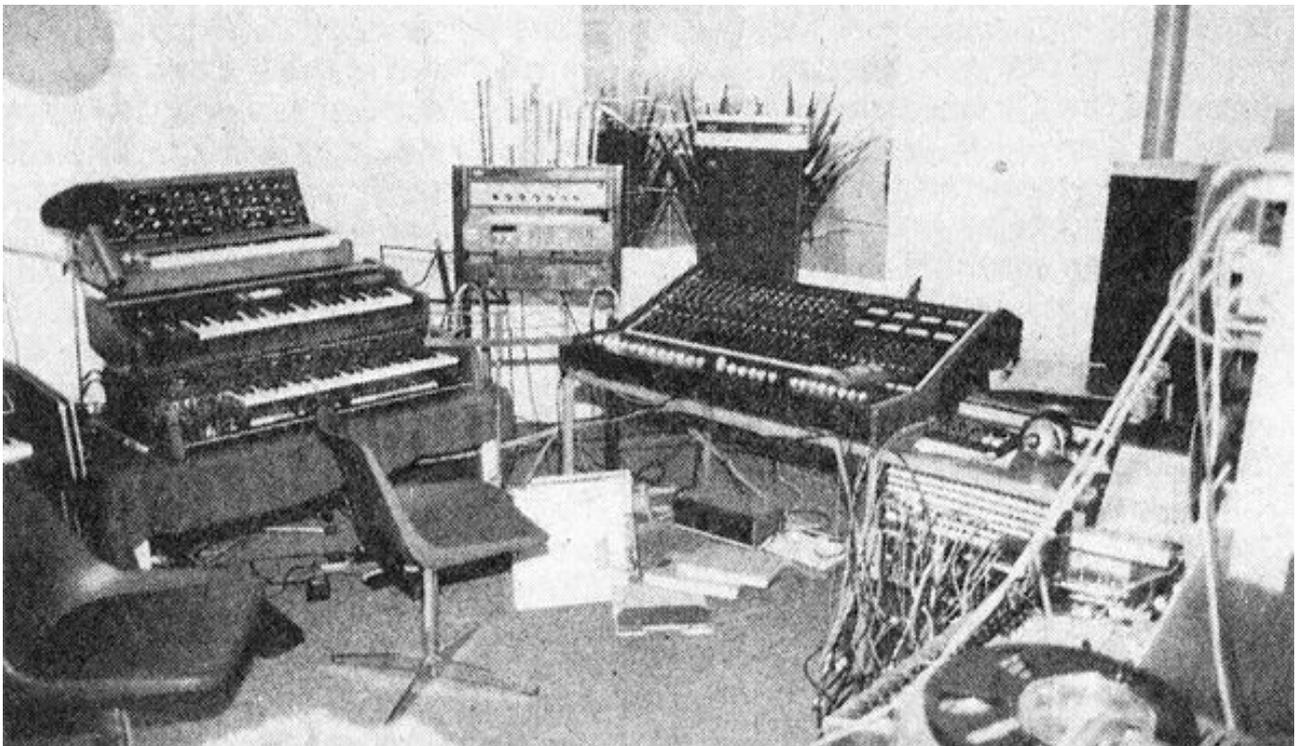
'It was mixed down in a Paris studio and we were sectioned off in our little areas and multi-channel recorded. Then Stockhausen spent several days mixing all this, bringing up one group after another as if describing an imaginary walk between the different groups in a park.'

I asked how he felt about the great length of the piece, which is over 3½ hours. Tim feels that 'music is there to take people out of their normal time-scales. The whole of life could be reduced to a smaller time-scale but it would become intensely boring. Our musical rituals in the West are still extremely short in comparison with the rest of the world and 'Sternklang' does establish its own time-scale and I like that.'

Whenever he hears the music, it reminds him of sitting in damp parks waiting for the next cue, freezing and cursing the mosquitoes — while some of the crazy tuning could have come from a "mad minstrel orchestra in central Bulgaria!"

## **Hitch-Hikers Guide to the Galaxy**

This was originally a book by Douglas Adams that has since been produced for BBC radio and television, stage show and as a double album. There's also a sequel to the Guide on a further LP entitled "The Restaurant at the End of the Universe."



The Studio

Both Tim and Paddy Kingsland of BBC Radiophonic workshop (featured in Electronics & Music Maker March Issue) were responsible for the music and effects for the different presentations. Tim arranged the BBC opening theme music 'The Journey of the Sorcerer' by Berni Leadon and also wrote all the music for the LP record.

The signature tune used on the television was built up in the normal way using synthesiser over-dubs. The particular version we were discussing is not on the LP's but is available as a single. There's quite a lot of voice vocoder treatment in it, with JP4 arpeggios going into the vocoder so that the overall shape goes from low to high from the vowel sounds changing from "aah" to "eeh."

If you listen carefully you can hear the cymbal sound changes at one point into a sustained 'ssh' sound from Tim that's fed in the vocoder mic with the JP4 going through it. The bass part is also occasionally transformed into a low voice note by this method. The sitar-like sound really comes from a banjo with "stereo phased backwards reverb!" Each note is preceded by a pre-echo of itself, done by simply turning the tape over, recording the (now backwards) banjo part through the reverb unit onto another track, then reversing the tape again for playback. Roland vocoder "strings" fill the background.

On our E&MM cassette No. 2 you can hear another technique used in the Hitch-Hiker — the stereo bounce echo from the Lexicon Prime Time, as the JP4 plays a slow arpeggio sequence. There's also the MXR Pitch Transposer, showing its effect on voices — just as used on the albums, but with an Eventide Harmoniser. Then echo is added from the Prime Time with its modulation oscillator switched in to give sliding transpositions on the voices.

An interesting example of a rhythm track is given because the distinct bass line you can hear is not really there at all — it's synthesised drums going through a digital delay at certain delay times (controlled by hand), and it's the inter-relationship between the times which are producing the frequencies by difference tones

and feedback. The second rhythm is produced from a drum machine fed into the Serge synthesiser, with the pulses being used to produce different instruments — often sounding like artificial tablas.

When composing his music, Tim sometimes writes in detail but prefers to jot down basic tracks and then experiment with the recorded version of these during overdubs without further notation. Much of his commercial work is tied to scripts, but will in fact sound quite acceptable without the dialogue.

He doesn't use patch cards for the Serge because it would take him too long to insert all the details — so he just notes the particular modules in use. He would love to be able to notate tone-colours in some kind of conventional way — 'if there was an agreed form for writing down a note which had been fed through a distortion pedal, flanged, filtered, transposed and digitally delayed you'd be okay, but there isn't.'

Tim's immediate plans are to win himself enough time to put together completely new material for his own album done in a 24-track studio. He still likes the combination of electronic and acoustic sounds and this will keep him happy for a long time.

If you want to hear some of his most commercial work to date, then take advantage of our special offer this month for the Hitch-Hiker's Guide LP's — the quality is superb! If you're an avid collector of electronic music (and who isn't!), Tim has kindly agreed to sell his last few copies of "Swit Drimz" LP at £4.99 each through E&MM. It's definitely a collectors item, with computer speech, jazz orientated electronics and the avant-garde music of our front cover.

All from a British composer who is already making an important contribution to the world of electronic music.

## **TIM SOUSTER**

Tim Souster read music at New College, Oxford from 1961 to 1964. In 1965 he became a music producer with BBC Radio 3, specialising in contemporary chamber music and working with Stockhausen, Berio and Henze among others. In 1967 he left the BBC to become a freelance critic in both rock music and contemporary classical music, and during the period 1968 to 1969 he concentrated on composing and performing. In 1969 he was appointed composer-in-residence at King's College, Cambridge, a post which he held until 1971. At Cambridge he joined forces with Roger Smalley to form the electronic music group, Intermodulation; during the next seven years they performed extensively in the U.K. as well as touring Germany, Poland, France and Iran. Between 1971 and 1973 Tim worked with Stockhausen as his teaching assistant at Cologne State Music High School. This was followed by a year in Berlin where Tim became composer-in-residence on the West Berlin Artists' Programme. In 1975 he was appointed as Leverhulme Research Fellow in electronic Music at Keele University. During 1976 he formed the group odB with Peter Britton and Tony Greenwood.