

Synapse

**PATRICK
MORAZ**

**PATRICK
GLEESON**

**ROBERT
FRIPP**

REVIEWS:

Talking Heads, Brian Eno, Suicide,
Synergy, David Bowie, Peter Gabriel,
The Normal, The Jeff Lorber Fusion,
The Residents, Herbie Hancock,
Joan La Barbara, Jean Luc Ponty,
Larry Austin, Moebius

EQUIPMENT:

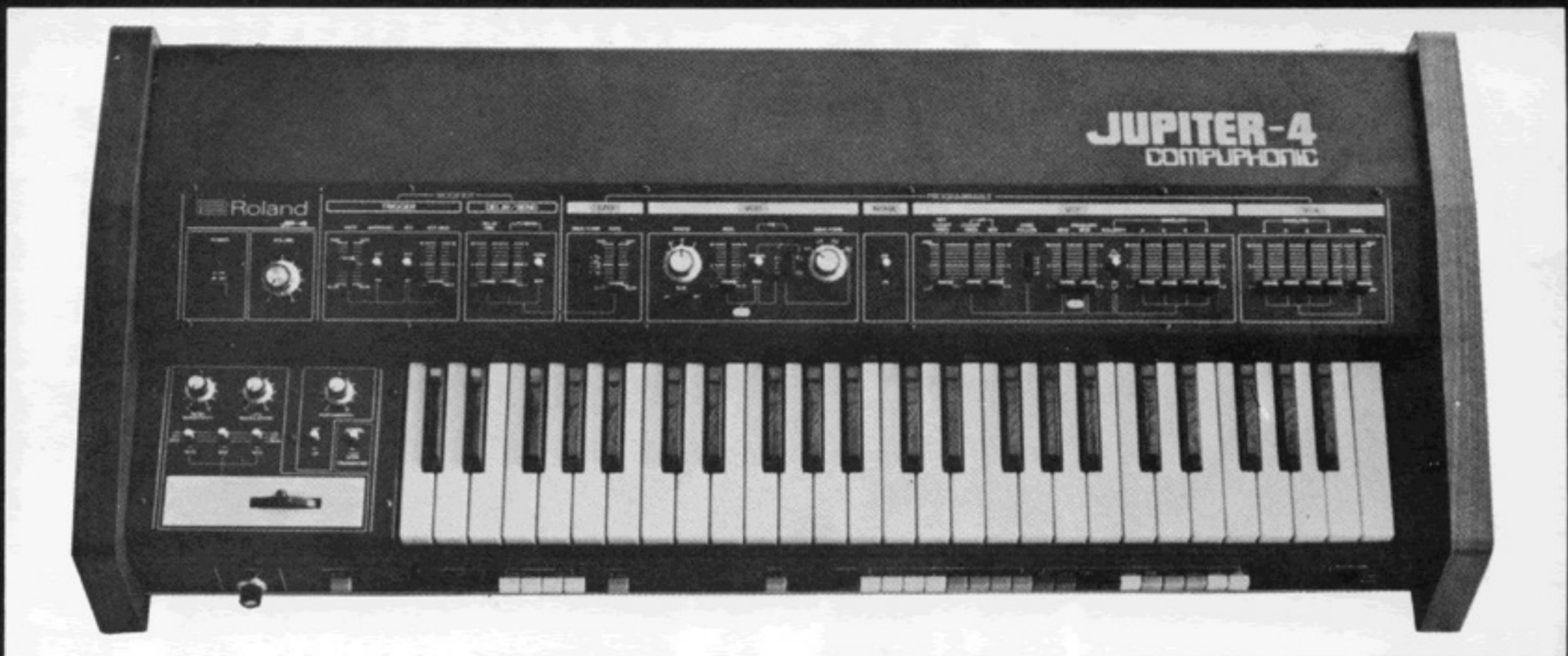
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LETTERS

Build Your Own

I am a Japanese technical college student and interested in making a synthesizer. Will you tell me about any manuals on synthesizer circuits?

Seiichi Kageyama
Okayamaken, Japan

The most prolific source of circuits for electronic music I know of is Electronics, Newsletter of the Musical Engineering Group, 1 Pheasant Lane, Ithaca, New York, 14850. -Ed.

Corrections

I applaud the idea of your "Tech Notes" column. It and your other informative columns occupy a prominent place in my files.

I must, however, call your attention to some errors and inconsistencies in the Jan/Feb '79 column, "Controlling and Interfacing Synthesizers."

At one point, Mr. Diemer mentions "Two-voice synthesizers like the Arp Odyssey and the Cat." If we accept the industry definition of a synthesizer "voice" as the traditional VCO-VCF-VCA signal path, the two instruments mentioned are not two-voice, but two-note synthesizers. This is not meant to slight these two excellent instruments, but the distinction should be made clear.

Also, Mr. Diemer states at one point that "The Minimoog provides for two control inputs, one for the oscillators and one for the filter..." (In fact, there are three control inputs- one for a voltage controlled amplifier), but several paragraphs

later states that "The only interfacing port provided on the Minimoog is for external voltage control of the filter." These two statements appear to be contradictory. For Mr. Diemer's records, also, the Minimoog is a low-note priority instrument, and does not produce multiple triggering on ascending passages.

Finally, the master oscillators on the Polymoog are, in fact, voltage controlled, which may be easily confirmed by noticing the front and rear panel controls for frequency modulation.

I would hope that, not only for the benefit of my company, but for the synthesizer field in general, more care and research are exercised in future articles. The electronic music field is still at the point where an innocent mistake can misdirect a novice's thinking for quite a while.

We're all one big family, so let's not shy away from correcting and supplementing each other's works.

Rock Wehrmann
Artist-In Residence
Moog Music

Thank you for your ideas and clarifications. The low note priority and multiple triggering discussion was meant to apply to the Minimoog, not the Minimoog. Please excuse my editorial error. -Ed.

Music/Technology

This letter is devoted to a matter that has been occupying more and more of my thoughts lately. It is precipitated by Patrick Gleeson's columns in CK, but the kernel of thought has been in my mind

since the first issue of Synapse I ever read.

The question is the old question-what is the relationship between art and technology? This is particularly germane in synthesis because the process is the product, so to speak. That is, the machine makes the sound; every aspect of the sound is controlled by the machine.

It seems there is a continued emphasis upon the equipment. There is a continual game of one-upmanship among synthesists, so that the typical exchange is: "I have this equipment, which allows me to do that, and so I am at an advantage over you who have that equipment and so can only do this." Particularly with the advent of computer control, digital, software parameter and transient control, etc., the technological aspect is at the forefront. CK, Polyphony, and now Synapse offers page after page of equipment evaluation. Nowhere do I read about music.

I am building a synthesizer using Emu voice cards. The project is teaching me a lot about construction, electronics, design, but it teaches me nothing about music. The only thing that helps my music is practice.

I guess what I am saying, is that I feel there should be more discussion of the philosophical question about music and technology. You see, you, as print media, as spokesmen for the field, have influence over vast numbers of those who will one day be the leaders in the field. Should future leaders be discouraged because they don't have the equipment? I think not. And I think that any kind of feeling that equipment makes the musician should be debated thoroughly. I found frustration early in my entrance into the field because of a prevailing attitude that the Odyssey

(my instrument) is somehow indicative of second class citizenry in synthesis. And I find this is not so. It is a musical instrument like any other and capable of producing worthy music. After all, Bach didn't have computer control, and yet there is no denying his music is worthy.

So I hope that amidst all your plans for columns and articles that you will make room for debate on the most important issues in the field - the philosophy of what we are doing.

Chuck Larriou
Corte Madera, CA

Punk Junk?

I do not understand why you continuously plug punk outfits like DEVO and Beefheart, Zappa, etc. when their style is not specifically oriented toward pure electronic composition but rather political and social deviation and rebellion. I see no logic why these people should even be mentioned in an Electronic Music magazine. If that is the case, then why don't you add disco like Donna Summer (i.e. "I Feel Love") and just everyone else in the plagiaristic pop scene that uses some degree of electronics. I had hoped your magazine would be a more specific publication instead of "compromising" to please the punk crowd. Sure, these bands use a couple synthesizers, but then again, EVERYBODY does now. Synapse isn't exactly what you would call CREEM or CRAW-DADDY or any of that commercial crap. It's a fine magazine, made by fine people. A little less of this anti-art punk garbage that assaults rather than enlightens would upgrade your magazine considerably.

James Finch
Salamanca, New York

What's wrong with political and social deviation? -Ed.

Did you know that The Rolling Stones, Van Halen, Steve Miller, Mahogany Rush, Peter Dinklage, Fleetwood Mac, Black Sabbath, Johnny Guitar Watson, Stephen Stills, 5th Dimension, Boston, Bay City Rollers, AC/DC, Janis Ian, Bob Weir, Chic, America, Earth Wind and Fire, Bob Seger, Kiss, Thin Lizzy, Beach Boys, Nektar, Taste of Honey, Aerosmith, Elvin Bishop, Billy Joel, Bob Welch, Randy Bachman, Pat Travers, Foreigner, Derringer, Heart, Foghat, Mandré, LTD, Styx, Kansas, Heatwave, Rufus, and Yes all use THE

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For Sale: Oberheim 2 Voice with mini-sequencer and extra interfacing. Very good condition. (216) 238-0644. 12-8pm. David.

Australia's first electronic music festival is in Melbourne this August. We would like to hear your music! Please send details of tapes/records/hardware to Julian Driscoll, Music Dept., La Trobe University, Bundoora, Victoria 3083, Australia.

Electro-Acoustic Systems, Inc., 20 Piedmont Street, Boston, MA 02116, (617) 482-8110.

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Andrew Puler/RETNA

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PROFILE



PHOTO: BEN CASWELL

Karl Richardson (left) and Albhy Galuten (right), the Emmy winning studio team behind the Bee Gees' sound.

Albhy Galuten and Karl Richardson are probably best known to AM listening Synapse readers as the producers of the Bee Gees, having reached the status of Top 40 icons through the success of the **Saturday Night Fever** soundtrack, Andy Gibb and Samantha Sang. Production teams are rare, most producers preferring to work alone, but Richardson and Galuten have managed to evolve a complimentary partnership of great effectiveness.

Their collaboration began at the Criteria Studios in Miami, where Richardson was working with the Brothers Gibb and Arif Mardin on the Bee Gees' **Main Course** album. Richardson is the engineer of the two: "Mixing, balancing, sound, EQ, echoes, and choice of equipment we use. But when it comes to an out and out arrangement or musical decision, I think Albhy usually takes precedence over anybody because of his knowledge and experience."

Neither feels that Top 40 is a musically limiting format. Galuten stresses that, "You have to be experimental, Top 40 records are innovative a lot of times in certain directions". Both see the dangers of conveyor belt, assembly line product, and strictly avoid formula hits, searching primarily for feel and emotional statements. This certainly doesn't preclude experi-

mentation and the use of electronics.

The new Bee Gees album for example features phasing produced by a Marshall Time Modulator. This, in Galuten's words, is "a digital delay unit that sweeps back and forth between various moments of delay using a control voltage that's set by the instrument that's plugged into it, or an external control voltage". Other interesting effects are produced by keying a sequencer off the 24 track. Richardson explains that they, "manufactured a click track with a metronome; and since the click track was in eighth notes, and we actually needed sixteenth notes, we delayed it and got sixteenth notes. Then we used that to trigger an ARP sequencer through a [ARP] 2600 and created a lick on a verse that's impossible..."

The inspiration for much of this was Giorgio Moroder's work with sequencers in Donna Summer's disco output. Galuten adds however that, "We always try, in dealing with synthesizers, to make it as human as possible. And the thing with most of the sequencer oriented bits of synthesizer music is you have to put the sequencer on first, and everyone's got to play to that".

With Galuten, the music and the consideration for the artist always come first. "I hear a sound in my mind, and try to determine how it

is that you go about getting that sound. And the 2600, of the readily available commercial synthesizers, is still the most versatile to me". For most of his ideas, Galuten has found that patch cords are essential. He is also very fond of guitar synthesis, although he hasn't used it very much so far in the studio.

Richardson in particular though is very interested in combining natural instruments with synthesizers. Two or three tracks of synthesized strings, for example, would be mixed and then combined with the exact line played with real strings. This produces an extra dimension to the sound that neither medium can produce alone, and is a particular hallmark of the incisiveness in the Bee Gees' sound.

The latter's new album also features the use of more than one 24 track tape machine, co-ordinated using a sync pulse. This was an idea picked up from Phil Ramone, whereby, "We have a master tape, and we have slave tapes. And we'll take a version of the slave and we'll put on it the basic rhythm section. Then we'll do 16 tracks of vocals. Then we'll sync the two machines back up and combine all the vocals back into the master. You just sync up your two machines, leave them there, and they phase on their own. It's just about the optimum way".

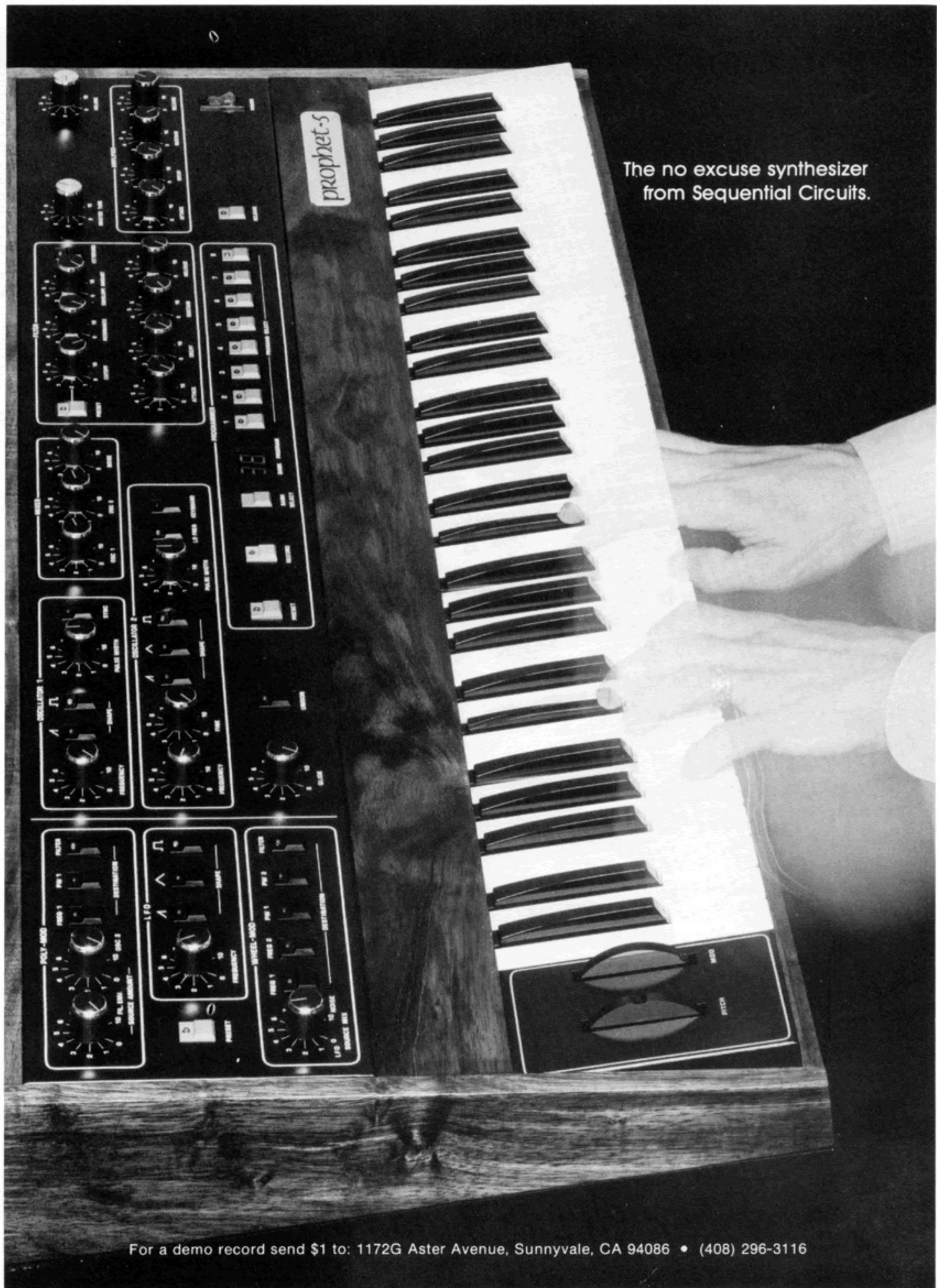
Richardson is not that enthused

about the vocoder however. "We might use it as an effect. I'm not sure. I've used the Aphex and a few of the other toys, but again I'm still more convinced that the performance and the note has as much to do with anything - the sound is merely an enhancement of that."

Galuten is conscious of the fact that studio-crafted material is at some point going to be performed live, with the resultant loss of slickness and diminished production values. Yet he knows that the live energy of concerts is its own virtue, a quality that can't be manufactured in the studio, where "you have to try every trick you can to create the emotion and the feeling out of the notes themselves. When someone's on stage the person's actually there. You have the vibes involved, and the audience, and it's much easier to create. You have to go through whatever you can to make it work on the record. And on stage, if you have to change it, you just change it".

The basic philosophy of both is that good production can only enhance the performance of already good material. As Richardson stresses, "If you have a turkey song, you can use all kinds of great sounds and it still sounds like a turkey. To quote Jerry Wexler, 'You can't turn shit into chocolate'".

-Melodie Bryant & Colin Gardner



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ITEMS

....The **New England Conservatory of Music** will offer an **Electronic Music Workshop** from June 25-29. The course will be taught by **Robert Ceely**, a veteran of Boston area electronic music activities. Morning sessions will include lectures, demonstrations and discussions on all aspects of electronic music, while the afternoon sessions will feature hands on experience with a variety of synthesizers as well as recording equipment. For information contact Robert Annis, Director of Summer School, 290 Huntington Ave., Boston, MA 02115.

....**Salamander Music Systems**, P.O. Box 40267, San Francisco, CA 94140, have released the **Voltage Controlled Analog Delay 154**, capable of up to 1/2 second delays, voltage control of the time base, voltage control of the regeneration, and an LED meter. List is \$680.

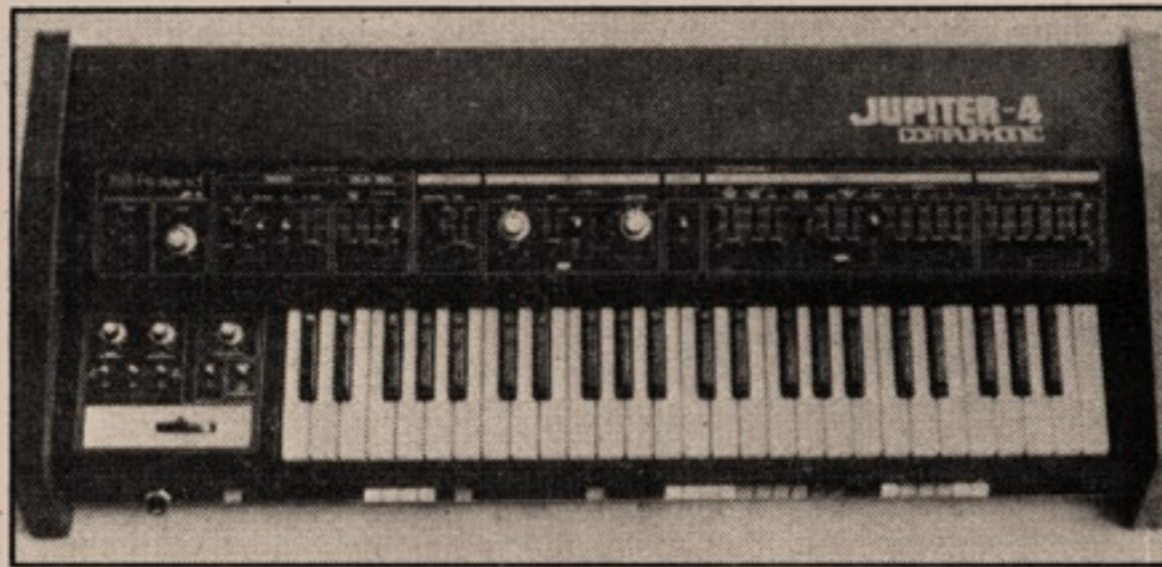
....A new guitar synthesizer, **The Nebula**, has entered the market place at \$1395 retail. Included are a low noise pre-amp; an input processor with a variable squelch noise gate, a compressor, a variable depth overdrive, and divide by two and multiply by two circuits; an audio mixer, a parametric equalizer; a filter/phaser with dedicated ADSR; a VCA with dedicated ADSR; and an LFO with three waveforms. An optional pedal is also offered. **BCD Technology** 285 K Sobrante Way, Sunnyvale, CA 94086.

....**ARP Instruments, Inc.**, has announced the acquisition of the **Mu-Tron** product line formerly manufactured and marketed by **Musitronics Corporation** of Rosemont, New Jersey.

....If you have ever wondered about the expense, logistics, and profitability of touring a band, here is a little insight. On the most recent (and last in the U.S. until the '80s) **Genesis** tour, 70 tons of equipment was carted in eight 40' semi-trailer trucks with two mobile homes for the 28-man crew. Says Genesis' manager **Tony Smith**, "It costs \$35,000 a day to keep this lot on the road. It's like staging something twice the size of **A Chorus Line** every night. The tour will gross \$6,000,000 but the show is so expensive, we literally do not anticipate making a profit."

....September 28, 29, and 30 will be the **Northeast Computer Show** at the Hynes Auditorium, Prudential Center, Boston. Events and exhibits will include those concerned with computer music. For more information, contact: Northeast Expositions, Box 678, Brookline Village, MA 02147; (617) 522-4467.

....The prolific **RolandCorp US** has initiated a renewed excursion into the modular synthesizer market with the release of their **System 100M**. All modules conform to 104(W) x 230(H) x 200(D) mm in dimension, and 1.6kg. in weight, allowing for the use of standard mainframes to contain your own choice of components. **Module 110** (\$350) contains a VCO, VCF, and VCA and is intended to be a classic synthe-



Roland Jupiter-4 Compuphonic.

sizer voice, minus, of course, envelope generators LFOs, and anything else you consider to be essential. **Module 112** (\$375) consists of two VCOs, each with three independently variable control inputs, a "strong" and "weak" phase lock mode selector and manual or external control of pulse width. The **121** dual VCF module (\$320) features low pass filters, each with a fixed high pass filter with three switchable cut off points. Three audio and three control inputs to each filter, and LEDs to indicate signal flow, are also included. The **130** dual VCA (\$295) is switchable for linear or exponential control and also has three audio and control inputs. **Module 140** (\$295) contains a LFO with variable delay and five waveforms, and dual ADSR type envelope generators with normal and inverted outputs, and a manual trigger. **Module 150** (\$295) includes a ring modulator, a noise generator, sample and hold, and an LFO. A 32 and a 49 key keyboard are offered, \$350 and \$450 respectively, and three and five module racks with power are \$250 and \$325 respectively. Also new are the **Jupiter-4 Compuphonic** and the **RS-505 Paraphonic Strings**, the first featuring computer memory of 8 user patchable presets and unusual arpeggiating functions, and the latter featuring separate string, synthesizer, and bass sections. A unique rhythm unit, the CR-78, has also been released by Roland that features the ability to program rhythms into the unit using a pad, on to which you tap the desired effect. Accent control as well as automatic fills and ample interface ports for driving sequencers and the like are also included in this \$795 device. The **CR-68** (\$495) is as the above, without the programmable function. RolandCorp US, 2401 Saybrook, L.A., CA 90040.

....**John Duesenberry**, Director of the **Boston School of Electronic Music**, has been named by the **Artists Foundation** as recipient of a \$3500 Artists Fellowship. Duesenberry was one of nine composers selected, from a total of 97 applicants, for this year's fellowships in music composition, by a judging panel consisting of distinguished composers **Otto Luening**, **Barbara Kolb**, and **Christian Wolff**. The award was received in recognition of his compositions "**4 Movements for Tape and Prepared Piano**" and "**Phrase**".

....May 12, **All Ears Records** will present the **First Los Angeles Mani-**

festival of Progressive Music. Performing will be **Daavid Allen** and **Gilli Smyth** (Gong and Soft Machine), **Far East Family Band**, **Janun Martz**, **Cross**, **Yochk'o Seffer** (Magma), **Marut**, **Decayes**, **Moebius**, **Chakra**, and as yet unannounced groups. The 9.30 am - 12pm concert will be held at the Embassy Concert Hall, 847 South Grand Ave., in downtown Los Angeles, a hall that has seen in its day, the premiere of the L.A. Philharmonic, and performances by Caruso and Louis Armstrong. Tickets are \$8.50 and available in advance by mail order from All Ears Records, 7033 Sunset Blvd., Suite 322, Hollywood, CA 90028. Include an S.A.S.E. with your check or money order.

....**Rivera Music Service** is offering ten modifications for the **ARP 2600**. Prices of modifications vary from \$35, for an independent gate input to the AR generator, to \$130 for Phase Modulated Synchronization. Modifications are guaranteed for one year and are available from RMS, 48 Brighton Ave., Boston, MA 02134.

....**Blacet Music Research**, 18405 Old Monte Rio Rd., Guerneville, CA 95446, has released two new kits for synthesists. The **Phasfilter** combines both functions arranged into four independent output sections. The unit accepts external control voltages as well as that of the internal **Digital Pattern Generator**. The kit is \$99 plus \$20 for the power supply. The **Analog Delay** is available for \$198 plus \$20 for the power supply and features 4ms to 115ms of delay, a linear voltage controlled clock, digital sine wave generator, peak limiting and a noise gate. Kits include PC board and all parts and instructions, but front panels and knobs are excluded to allow maximum flexibility in application.

....The **Target Videobank**, 950 56th St., Oakland, CA 94608, is an artist-run system specializing in, among other things, video documentation of new wave music acts and experimental artists of all kinds. It is expected that tapes will soon become available for rent, and at present they can be seen at Target showings and on Target's weekly show on Cable Channel 25 in San Francisco.

....A new vocal synthesizer module has been made available by **Vortrax**. The **VS-K** module is \$375, and is available in additional configurations ranging

to \$745. Contact JHM Marketing, 4340 Campus Dr., Suite 212, Newport Beach, CA 92660.

....**Strider Systems, Inc.**, P.O. Box 2934, Norman, OK 73070, has announced the release of their **DCS II**. Models are available in one-to-six note versions with prices ranging from \$2295 to \$4795. Of the 48 storeable patches, 16 are permanent presets and 32 are user variable. A 256 note memory sequencer is also included and features 16 memory banks. Of special interest is a programmable joystick that can be applied to most synthesizer functions.

....**Craig Anderton** and **Roger Clay** have begun monthly publication of **Device**, the **Newsletter** for the **Electronic Guitarist/Musician**. Included in the format are construction articles, equipment reviews, features on circuit design, and interviews. Subscription rates are \$15 in the US and available from Device, P.O. Box C, Carmichael, CA 95608.

....**Norlin Music** has introduced the **Moog Vocoder** listing for \$6500. By patching, the amplitude contour of any of the input filter sections can control the amplitude contour of any of the output filter sections, yielding interesting results. Norlin Music, 7373 North Cicero Ave., Lincolnwood, IL 60646.

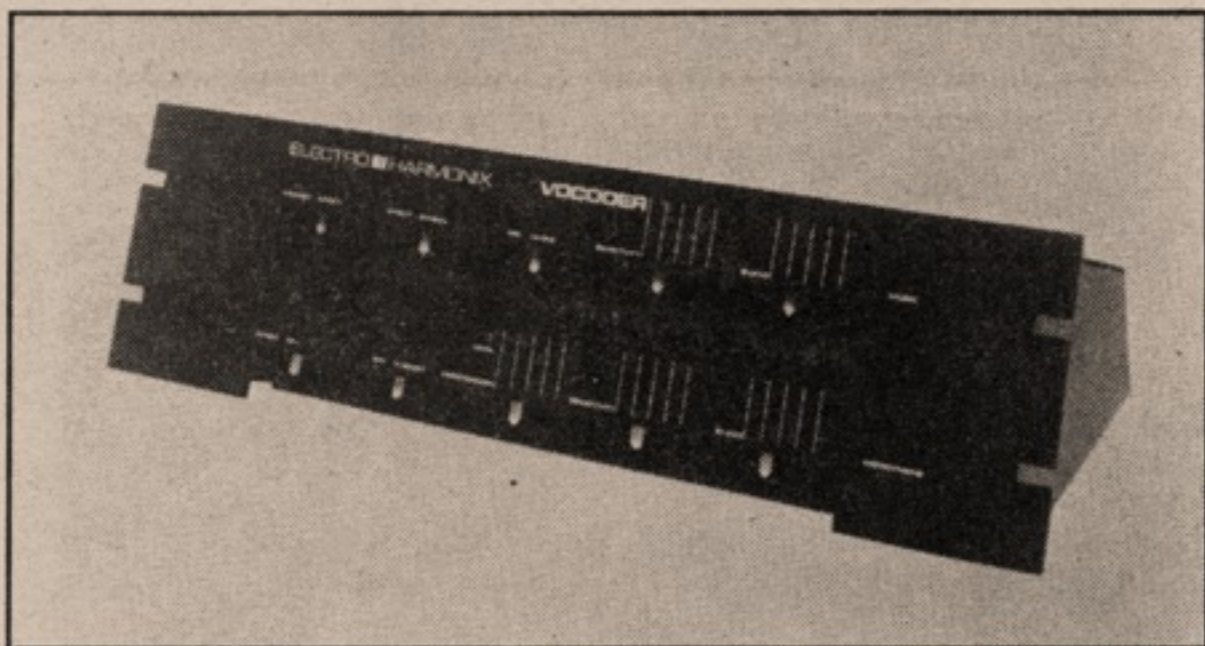
....**Crabtree Studio**, 306 West 38th St., No. 14, NY, NY 10036, is offering private synthesizer instruction, rehearsal space, recording facilities, and synthesizer lab facilities. An Aries system as well as pitch to voltage conversion and sequencers are included.

....Composer **Barton McLean** will soon have released four scores, two including electronic music, by **Alexander Broude Publishers**. **Dimensions I** is for violin and tape, and **Dimensions II** is for piano and tape. McLean will also see the release of his **Dimensions II** on the **CRI** label, **Dimensions I** on **Advance Records**, and **Song of the Nahuatl** on the album, **McLean: Electro-Symphonic Landscapes**, which also features **Priscilla McLean's Invisible Chariots**, on **Folkways Records**.

....**Symetrix, Inc.** has announced the release of their **Phase Filter**. Controls include an input level control with LED overload indicator, two variable LFOs with LED rate indicators, a manual/auto sweep selector for LFO 2, a blend control, and depth and resonance controls. Low and high level inputs are accepted as well as a rear panel jack for external sweep control. The unit is \$299 from Symetrix, 109 Bell St., Seattle, WA 98121.

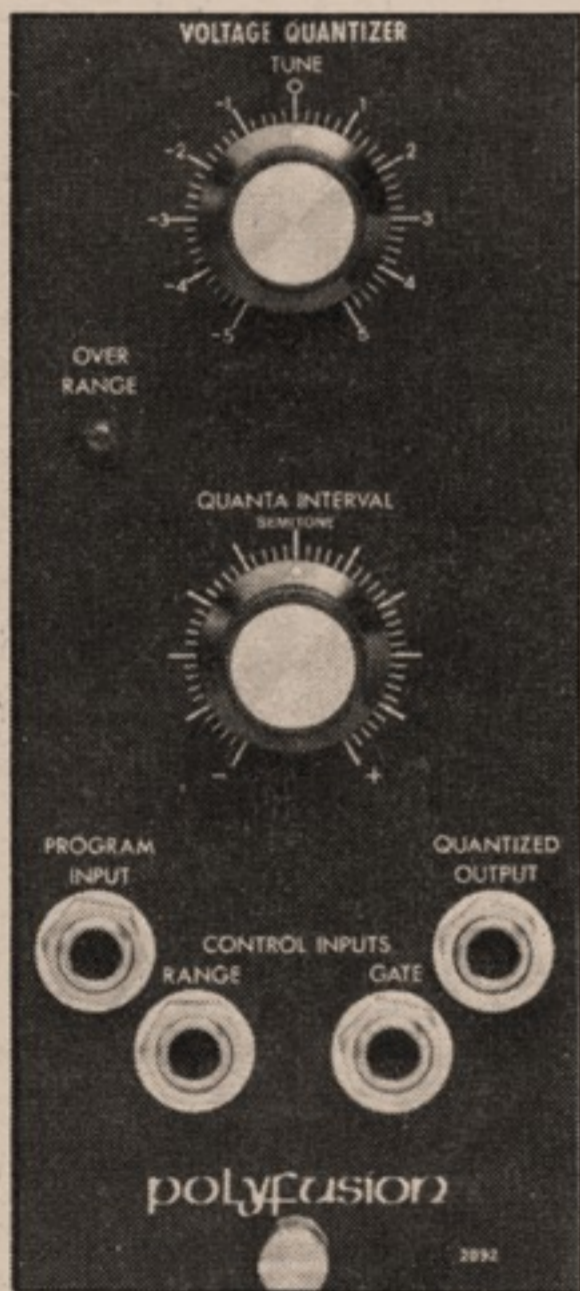
....**Wendy Carlos**, nearly a legend in her own time, is expected to break her long silence with the release of a two record set containing as yet undisclosed music. Release is scheduled for the fall but the label and all other information is still a mystery.

....The **Electro-Harmonix Vocoder** has been released listing for \$799.00. The rack-mountable device features two sets (for input analysis and output



Electro Harmonix Vocoder.

synthesis) of fourteen filters and a compressor. Electro-Harmonix, 27 West 23rd Street, New York, NY 10010.....
**Polyfusion**, 160 Sugg Road, Buffalo, NY 14225, has recently released two new products, the **2092 Voltage Quantizer**, and the **FP-2 Volume Control Pedal**. The quantizer sells for \$210 (required power supply not included) and accepts -5 to +5 volts and produces equal increment voltages at the output. The step size is variable from zero to more than a whole step.



Polyfusion Voltage Quantizer.

The Volume Control Pedal sells for \$69.95 and can be used with most instruments.....
**Star Instruments, Inc.**, makers of the Synare line of percussion synthesizers, are offering road cases for the Synare 1, 2, and 3, with retail prices of \$125, \$125, and \$110 respectively. Also available are a stand for adapting the Synare 3 for use as a

bass drum (Retail list price \$40); and the **Synare 3 Sequencer**. The latter unit memorizes sequencers played on the drum, including the stick dynamics and which of up to four possible drums were hit. The retail price is \$350. Growth in their market share has necessitated moving to a new plant located at 250 West Main Street, Stafford Springs, CT. Write Star Instruments, Inc., P.O. Box 71, Stafford Springs, CT 06076.....

....The **Sequential Circuits Model 7000 synthesizer programmer** now includes a single plug interface allowing one cable installation with many synthesizers. The plug is already available on the **360 Systems Spectre** guitar synthesizer, and installment on **ARP** synthesizers is offered by the ARP's custom engineering group. The plug can also be user installed. The Model 700 programmer lists for \$995. Also new from Sequential Circuits is the Model 840 Voltage pedal, listing for \$75. The pedal outputs 0-9 volts in its sweep. Sequential Circuits Co., 1172G Aster Ave., Sunnyvale, CA 94086.....

....The **Synthesizer Exchange Service** is a new electronic music organization offering the opportunity for interested people to get into contact with others of similar interest, or in similar geographic locations. There are no fees, and a periodic newsletter is distributed to the members. For more information, write: Synthesizer Exchange Service, P.O. Box 294, Corte Madera, CA 94925.....

....**Tama** is expected to release the **Model DS200X Snyder** percussion synthesizer. Two pickups are mounted on whatever drums you chose from your set and each is fed to the 2-channel DS200 synthesizer module, featuring controls for Sensitivity, Tune, Sweep Time, Sweep Range, Decay Time, and Output Level. Elger Company, P.O. Box 469, Cornwall Heights, PA 19020.....

....A new product from England is the **Arak Polycontroller** keyboard. The keyboard outputs voltages and gates for up to ten synthesizers or modules. An ADSR is included with each output as well as controls for pitch bending, vibrato, portamento, unison and infinite sustain. Computer interface capabilities are also included. Arak Sound Ltd., Preston House, High Street, Crowthorne, Berks, England.....

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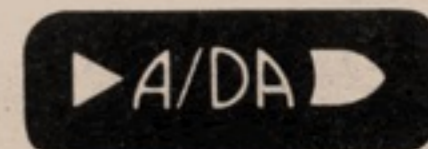
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PROFILE

PHOTO: CHARLES WILLIAM BUSH



Michael Boddicker

Michael Boddicker is one of the top session synthesists in L.A. He has, by his own admission, played on over 30 gold and platinum albums, including *Saturday Night Fever* and Barbra Streisand's *Superman*.

"When I moved to L.A. in 1974, my first goal was to be in the recording business, and I fell right in with Ray Parker and Ollie Brown, who still remain close friends. We did an album. We recorded four sides of myself, and I sold songs to publishers, and got to play on a couple of Ray and Ollie's records. So I immediately went home and got all my stuff and moved out here thinking it was big time. And then I didn't work for three months solid. I finally ended up playing a club on Sunday where I played five hours for \$15.00, and had to drive 60 miles to get there and set up a B-3 and a piano." But gradually, word started getting around, and after playing the synthesizer track for "Rockford Files", Boddicker started getting calls for session work.

"For studio musicians, Los Angeles offers so many opportunities. All the television and films and jingles and records and publishing. It's limiting for live performance; but if you want to play in the studios, I think there has always been, and will continue to be, lots of dates here. Much more so than in New York."

Boddicker comes from a musical background. "My parents have a music school, so there were always pianos and organs and accordians around the house. And my mother was a performing musician making her living at the age of 15. From day one, she started playing records by my crib. She had these non-profit groups that always performed, and we toured. I played piano, trumpet, guitar, bass guitar and bass accordion; depending. We did so many World's Fairs it was ridiculous. And contests here, and stopping at gas stations in North Dakota and putting on a performance. By the time I was 16, I had

played in every state of the union."

"I fell in love with synthesizers when I was still in high school. I was a composition major, and used to spend hours a day in the music department just composing and writing. And a substitute teacher of mine brought a synthesizer to school - an EMS Synthesizer - to show me as a compositional tool. I had a Hammond, and I liked the colors I could get out of it as compared to my piano. But he had the Synthesizer, and I was amazed.

"Later, I went to Coe College where I studied composition with Jerry Owen. You meet a lot of people who play synthesizer and don't know how the instrument works. They know combinations of buttons and knobs. I was fortunate, because Jerry taught me a lot about synthesizer theory from the bottom up. I also attended the University of Iowa which has an incredible music department. It's subsidized by the Ford Foundation, and they have three very well equipped studios with Moog and EMS and ARP and test equipment."

Boddicker himself owns up to twenty synthesizers: several ARP 2600s, stock and modified; Mini-moogs and Micromoogs; a custom modular Moog; a Polymoog; an OB-1; an Oberheim 6 voice, a Sequential Circuits Prophet; a couple of ARP Soloists and Odysseys, Yamaha CS-80, and other effects.

"It's important to have all the equipment necessary to do the job. Which means that I couldn't have just one synthesizer, because they all do different things.

"I fell in love with synthesizers from a compositional standpoint because the colors are infinite. But they tend to be limiting from an emotional standpoint. It's not like a violin where you control all the portamento, pitch, everything just with your left hand. But that's coming for synthesizers. With double-touch keyboards, joy sticks, pitch bend and modulation wheels and vocoders, now you can do quite a bit."

-Melodie Bryant

BRIAN ENO

MUSIC FOR FILMS

Antilles AN-7070

Brian Eno Music For Films

Although it is apparent that this lp is not a follow-up in line of direct succession to **Before and After Science** (being a series of unused tracks from as far back as '75), it is also obvious that it is a cohesive work unto itself. It is also nothing short of breathtakingly beautiful.

The aegis of **Music for Films** itself is a seeming refinement of that intent which ran threadlike through **Another Green World**—that being a tropistic catalogue of mood. Or Mood. Fleeting whispers of vague sensation, pleasantly indeterminate, dance across the screen of this film for the ears, aural imagery as poignant as extras standing in the rain-soaked pathway of some London garden cut from a middle-Hitchcock film. You wonder what **their** story is.

The tracks themselves: had **Another Green World** been a double lp, this might have been the other disc; save that there are no vocals. Side one opens (there are nine tracks per side) with a bit of robotoid, gunmetal blue synth that smacks both of "Sombre Reptiles" and "No One Receiving". It carries that chiming, pulsating aquatic chug to it that makes one believe Eno has a stethoscope that he occasionally places against the Heart of the World, checking all the different rhythms to find out that it isn't yet completely broken, only transfigured. It carries the rather impersonal title of "M386"; yet it is just an intro, much more the album's hard outer casing than anything else.

The bulk of the eighteen tracks found on this interim collection cast the wavering **Chiaroscuro** of assorted moods; the instrumental ambience making this perhaps the most eclectic collection since . . . **Green World**. Like that lp, many of the bands do a slow fade-in/fade-out, as if only a glimpse was being provided of something that had always been going on, and always would go on.

Picture walking down a long stretch of hallway with many doors on either side, each labelled with a different, slightly cryptic, vaguely sinister symbol. Open one door and you see a man and a woman sitting naked on a Persian rug playing dominoes. A window with the curtains drawn back tells you it is raining. They don't appear to notice you. Close the door. Skip the next one.

Handball court? Up in the bleachers a small tour-group of German shepherds in pinstripe suits are watching intently. One is collecting bets in his tweed cap. No one is on the court.

Trot on down past three more—the situation is growing serious by this time. Door opens and you feel a sudden blast of dry, invigorating heat. Wide open spaces? A red-rock desert? Opening the door a mite further you realize it leads to an immeasurable expanse of arid wasteland. The sky is a blazing ochre, streaked with long swathes of deepening blue. Great awful, wonderful constellations. Far off on the horizon small clouds of dirt and gravel shoot up in the air as one track vehicle, the merest speck on the skyline, hotly pursues another. The faint firecracker spatter of distant automatic weapons on full. You slam the door, your heart racing, lean up against it, beads of perspiration breaking out on your forehead. Jesus H. Christ!

But you go on looking—it never ceases to amaze—or pull you back. Each time the door opens the same thing is happening. Only each time you linger a bit longer—you see a little bit more. You perceive the situation a little bit better in the twittering microseconds of enlightenment allotted to each room—each particle of each layer of each dimension adds a new hint about its successor. With repeated access to each dimensional "gate" it all becomes **more apparent**.

Providing added scenario are the usual Eno-cohorts: Fripp, Phil Collins, Paul Rudolph, John Cale, Fred Frith, Bill MacCormack, et al. But the variegated moods come from a stretch that rides all the way from three years on—in which it is possible to recognize Brian Eno's evolution as a careful aural expressionist, striving for the pure picture, the strong balanced with the light, torrent in counterpoint to drizzle.

Surprisingly in the breakdown, the audio complexes are deceptively simple—there are no instruments unfamiliar. The basic fabric of the AKS and CS 80 are still nubbly-familiar to the touch. What delights is the continuous and ingratiating series of portraits purveyed by a compulsive creator. Environments and collages of environments which mutate with added attention. A hallway to remember. And as Ernest Hemingway once said, "Fuck oblivion."

—Franc Gavin

Talking Heads More Songs About Buildings And Food

One problem when a group of art school friends form a band is that critics immediately jump to categorize their music as artsy, clever, or often, pretentious. Alternately, earnest art purists immediately wonder why they are no longer creating visual art. Music seems to be merely a second best, an admission of failure, a selling out into commer-

cialism. Of course one could argue that in music they are simply finding another form of expression, as valid as visual art, and in the case of tape collage, plastic also.

Talking Heads manage to break down these dogmatic categorizations, although they too are not without their detractors. Based in New York, they have toured the club circuit, originally as a trio, played with bands such as Blondie at CBGBs, and in some ways seem to derive from the "school" of music that produced The Velvet Underground and Television. Their first album, **Talking Heads '77**, was considered to be one of the best L.P.s of that year, largely on the accessibility of the very popular "Psycho Killer". Led by vocalist/guitarist David Byrne, the band combined solid riffs, catchy melodies, idiosyncratic vocals, and fascinating lyrics by Byrne. "Don't Worry About The Government" for example portrayed Civil Servants as humans too: "Just like my loved ones"; and extolled the conveniences of highways and buildings.

With their second album, **More Songs . . .** they have advanced remarkably under the production of Brian Eno. Recorded at the Compass Point



Sire SRK 6058

Studio in The Bahamas, the basic tracks were laid down live in just five days. Another month and a great deal of care was then spent on overdubs and mixing, guided largely by Eno's Oblique Strategies system of random experimentation.

The most immediate impact of the band is David Byrne's voice. It is completely unique, and although he occasionally sounds like Bryan Ferry, he gives the band its unmistakable sound, built upon a stuttering, shouting, hiccup. The songs appear to be very complex, with constant changes of pace and coloring, yet beneath the surface the rhythm section of Chris Frantz (drums), Tina Weymouth (bass), and Jerry Harrison (keyboards and guitar) is basically funk oriented. Indeed, the backing tracks on this album could easily accompany James Brown or Wilson Pickett, and Byrne's lead guitar often reinforces this. Thus the songs have a great deal of rhythmic attack, tempered and modified by the fragmented mosaic of the melodies. In this way Talking Heads' sound seems simultaneously dense and minimal.

Eno's production has been geared towards taking each idea as far as it will go before it collapses under its

own weight. This has led to a vast number of ideas per minute, each cut being a concise synthesis of something that could easily be twice its length. This often saturates the listener and we wish for a breathing space in order to take stock of what we have heard. For the most part however, we are carried along successfully through the musical changes, although this album takes repeated listenings to gain familiarity. Once achieved, it is difficult to take it off the turntable. Eno plays synthesizer on most of the tracks and has treated many of the instruments, particularly the drums. Synthesizer is used largely as a melodic reinforcement, creating a denser sound, although occasionally it provides a percussive rhythm.

The lyrical philosophy behind the album seems to be directly out of Samuel Smiles' **Self Help**, a nineteenth century tome advocating self improvement through hard work and determination. Thus "The Good Thing" is essentially about strength:

"Straight line exists between me and the good thing
I have found the line and its direction
is known to me
Absolute trust keeps me going in the right direction
Any intrusion is met with a heart full of the good thing."

The song is built around a pleasant guitar riff and Tina Weymouth's bass, with a warbling chorus provided by "Tina and the Typing Pool" that in some ways sounds like a Gregorian Chant. As Byrne sings, "As we economise, efficiency is multiplied"—"Watch me work", so the band goes to work also, building up the rhythm as Byrne and Jerry Harrison's guitars mesh in duet.

If the band's philosophy can be summed up in one song it would be "Found a Job". A couple argue over the bad reception on a TV show, "Fighting over little things and wasting precious time". Then they decide to do something practical about it and start their own shows. Now, "Judy's in the bedroom, inventing situations". Thus by taking charge of your own life and doing something about it instead of complaining, you can advance into wider fields—ie. self help. Byrne sings in an earnest, aggravated style over a funk-dominated rhythm, before the song breaks into an extended ending (in contrast to the economy of the other songs) featuring the percussive synthesizers of Eno and Harrison, sounding very much like a Jamaican steel band. The tightness of this song is phenomenal considering that the final take was a rehearsal.

Many of the tracks feature electronic effects. "Warning Sign", for example features considerable echo on Byrne's voice as he imitates a loud speaker announcement—"Warning sign! Hear my voice! It's saying something that's not very nice. Pay attention!" The drums are treated to produce a tinny, but dulled sound, combining with a solid, bass-built riff to produce a sinis-

ter, totalitarian feel to the song. "The Girls Want to be With The Girls" has treated guitar and some phasing alongside Eno's synthesizer.

Perhaps the most interesting autobiographical song is "Artists Only", a self-persuasive lyric about the creative process: "I'm painting, I'm painting OK. Cleaning my brain". The track builds upon a simple organ melody with guitar lines very reminiscent of Pink Floyd's "Interstellar Overdrive", particularly with the driving bass, which could easily be played by Roger Waters. The vocal is very earnest, almost paranoid, as Byrne asserts, "I don't have to prove I am creative". He informs us that pretty soon he will be better, and not to worry, because all his pictures are confused.

The commercial highlight of the album is a rendering of Al Green's classic "Take Me To The River", which, given the band's preoccupation with funk rhythm, is not a surprising choice of song. It is slightly slower than the original and more obviously built around the bass. Chris Frantz's drums are, as ever, simply effective, and in this case treated, while Harrison's organ pounds a percussive accompaniment. Byrne's voice is a little slight for this type of song; we wish for an Otis Redding to take the vocals by the scruff of the neck, but musically, it is excellent, and a welcome change of pace from the rest of the album, which, if it is to be faulted, suffers from an overconcentration of songs of similar tempo.

The album closes with "The Big Country", Byrne's view of suburbia from an airplane window: "I see the shapes I remember from maps", "A baseball diamond—nice weather down there. Places to park by the factories and buildings". After painting a smug picture of comfortable life, reinforced by a pleasant, slow riff on a slide guitar, he pulls the mat from under us: "I wouldn't live there if you paid me. No sirree". He would rather Stay Hungry.

—Colin Gardner

Lyrics © 1978 Index Music, Inc. / Bleu Disque Music Inc.



The Residents Satisfaction

"I don't dig music. Except as an irritant. What the hell better irritant is there than music?" —Captain Beefheart.

This record, with its steaming vocals

that dissolve into pure sibilance, and off-kilter guitars moaning the once-familiar Stones riff in a variety of keys, could understandably be a source of irritation to some. One wonders if Mick Jagger would like it. Do you remember side four of Frank Zappa's classic **Freak Out LP**, a long cut entitled "The Return of the Son of Monster Magnet"? Well, if you liked it The Residents are looking for you.

These boys "try to make the most interesting series of recorded noises that have ever been heard", and go further to state, "these noises sometimes sound vaguely like music". Does this sound interesting to you? Would you like to see The Residents in concert? Too bad. They don't play concerts. Considering their desire to remain totally obscure and anonymous, it's rather a contradiction that they even bother to record their work! Showbiz in the blood I guess.

Obviously, for most of us it's more fun to think about The Residents' image than to listen to their music. However, should you wish to subject yourself to this sort of thing, you might overlook "Satisfaction" and pick up instead one of their LPs, which contain similar and better material. **Meet The Residents, The Third Reich And Roll, and Fingerprince** can usually be found in the New Wave section of your favorite record store. They are all excellent irritants.

—Andy Capraro



Passport PB-6000

Synergy Cords

Larry Fast, a.k.a., Synergy, has managed to improve his compositional and technical skills with each release. **Cords** is Fast's third refined statement. It's also his first "revolutionary transparent recording". (i.e. the record's made of clear vinyl.) Additionally, **Cords** marks the first time Larry has recorded with another musician: Peter Sobel weaves his synthesized guitar into Fast's synthesized keyboard creations.

Initial responses to a record often change after repeated plays—frequently the glitter loses its sparkle. Not so here, and the reasons are many.

The material is consistently exciting, diverse, and most importantly, memorable. "Disruption in World Communications" in particular stands out. It begins in a delicate almost classical fashion and builds into a sonic attack

of threatening proportions. Succinctly, it's a scary creation that seems ideal for a science fiction soundtrack. It tests your woofer's woof and tweeter's tweet. \$29.95 speakers beware! "On Presuming to be Modern I", "Phobos and Deimos Go to Mars", and "A Small Collection of Chords" also impress.

There's only one problem concerning the sonics on **Cords**. It's difficult to determine if a particular passage or riff is being played by Fast's keyboard array or Sobel's guitar synthesizer. Perhaps, that speaks well for the guitar synthesizer prototypes.

The single most outstanding aspect of **Cords** deals with its engineering and production. The decibels swing, sway, ignite and dance across the air. The engineering merits a Grammy nomination. It's bloody marvelous!

Clear vinyl, solid compositions, inventive playing, and brilliant engineering. **Cords** connects!

—Greg Allen

David Bowie Stage

This is an album of our times. That is to say, it should never have been made. It is an attempt to reaffirm, and reaffirmations are necessary, quite rightly so, but David Bowie's relationship both with past and present on this lp is convictionless, almost non-existent. It appeared that with the incursion of **Heroes** David Bowie was through with the "Concept of Bowie" and ready to concentrate on the far more varied and fascinating conceptualizations that went into the making of his new and less theatrically inclined direction. To hell with that.

But then it has long ago been ascertained that most live albums are bullshit and the only thing that keeps **Stage** from being labelled as such is its prize-winning mediocrity. Some records are so bad that they are a joy to hate. It is sheer pleasure to listen to them over and over again, if only to remind yourself just what true unadulterated disgust is. This 2-disc live set is so cautious, plays it so safe so much of the time, that criticizing it brings neither the filthy pleasure derived from kicking up great piles of manure on some freshly-seeded lawn, nor the delight of squinting nobly as we sense the presence of the unseen angel behind thunderheads. It is never **that** extreme.

The first side of **Stage** is devoted to a **Low** treatment of some Ziggy Stardust material. Roger Powell's synthesizer works icily on "Soul Love" and ironically, with more effect during this sizeable chunk of old-audience placation than at any other time. And perhaps this is the rub, the crucial flaw in the album. On such traditional rock-oriented pieces, Powell does his level best to add a unique coloration.

But when it comes down to the more contemporary work, the work that is something other than Bowie earning enough for his next Porsche, banal things begin insinuating themselves

upon the overall form and content. When Bowie recorded **Low** and **Heroes** he was in Berlin, immersed in modern composition and meta-musik, but most important of all he was working under the tutelage of Brian Eno. And who should the best swordsman in all France fear? Only the worst swordsman in all France. And if Roger Powell could be nominally termed the best synthesizer player in rock, Eno would certainly be the worst. Which makes him better than the best.

Eno allows room for accidents, hopes for them, is constantly aware that limitations can be traversed and liabilities turned into unexpected assets. Powell conversely, is a musician's musician.



RCA CPL 2-2913

a precise perfectionist whose playing, try as it might, never really breaks out of the boundaries of the diatonic scale, because unlike Eno, he never approaches musical problems in a non-musical, environmental way. And that is what **Low** and **Heroes** have been—albums of environment—albums that are a distinct product of the environment in which they were created, giving off an eerie inner light in the delightful distorted refractions of whatever environment they were reproduced in, albeit with tonearm or radio-dial. But the non-musical essence of those two most recent works is somehow lost in the translation to a live program.

The interaction between Powell's synthesizer and Bowie on Chamberlain never quite gels into the monolithic force-field of mood that made "Warszawa" the six-minute tour of Northern Europe in the winter of 1938—orchestral sweeps of electronic keyboards breaking and gathering as ominously as clouds of impending war. Instead, the mixdown captures only the delicate flute-like sounds of a duet that smacks of pace-running, redeemed at the very end only by a short but interesting reply from Simon House's electric violin.

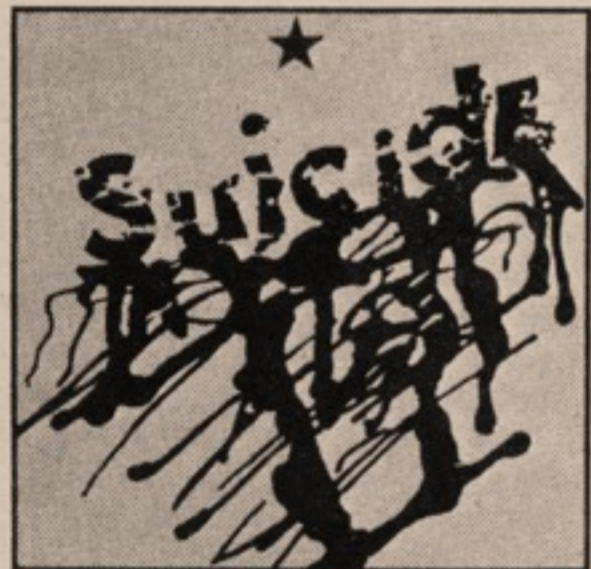
What made "Speed of Life" so punchy in the original was that Bowie-Eno crosscurrent—the sloppy synthetic downstrides on the last upswing of every guitar phrase that sounded like a transistor radio turned to an AM rock station fusing together with a melting PBX board in the middle of a thermonuclear firestorm. Gone. Completely gone. Replaced by a Neet, Kleen-Kut replica that has lost all seriousness simply because it takes itself so seriously. Powell's playing is so perfect, so non-abrasive, so profunct that all the dynamic tension has simply disappeared.

The rest of this misbegotten hunk of contractual-fulfillment pretty much follows suit. Bowie plods crooningly through "Heroes", a song where the density and urgency are of utmost importance in conveying that vulnerability. There are but few redemptions—a perhaps better version of "Breaking Glass", that is given a third dimension it had previously lacked. But this is an album of sporadic moments that arrive and fade quickly, never underscoring, rarely reiterating. They barely survive because the album never transcends being, as has some of Bowie's best, most recent work; as does all superlative music of any kind. It merely lies in wait, ultimately missing its chance, undershooting its target.

As a result it reveals the worst possible sides of a performer whose wretched excess has been too-long discussed, a performer who two years ago had said that he was going to make a concerted effort to escape the self-defeating confines of his own cult of personality. From the cover (Troy Donahue mugshots plastered throughout in various grainy texture) to the flyer in the jacket pocket, exhorting the purchaser to join the David Bowie fanclub, that entire resolution is negated.

Finally it is an album of which the only end results are questions. Such as: could it have been done better? Most assuredly, had it not been done with such obvious lack of care—a notable trait of most live lps. Could Brian Eno have done it better than Powell? Perhaps—but the killing factor is that David Bowie just sounds as though he doesn't want to be there at all. He is trying with the greatest of Siamese-Cat nonchalance to straddle the past, present and possible future of his music, failing at various levels in all departments as he diffidently bespeaks his ability to please all of the people all of the time. Is it an album that should have been made? Probably not.

—Franc Gavin



Red Star RS 1

Suicide Suicide

Don't want to take too long on this. This record's been out for months and months and we're just getting around to reviewing it, but Suicide had been around for years and years before they made the record, so it could wait. Waiting is part of the idea.

There are just two guys from New York here. Alan is the voice, and he sounds like he's standing in a cold rain, arms wrapped around himself singing through clenched teeth and finding something sensuous about it. Martin Rev plays instruments—electronic rhythm machines and synthesizers mainly—as if half his brain were concentrating intensely and the other half were not paying much attention.

The basic music is not at all original. It's like every banal rock 'n' roll riff, Doors-Spector and such, with everything but the bones sucked away and a sloshing palpable sensation of what's been sucked away remaining. Your sense of the familiar is twisted like you came home and found your cat frozen and dripping icicles hanging from the light fixture. But it has the beat that makes that instant connection.

Suicide creates dark. Play this record in a brightly lighted room, and before long all the light will be sucked into it. This could be art or poetry if you reason from how it affects you. Skipping around the lyrics; "Frankie Tear-drop" couldn't feed his family so he killed them and himself:

Frankie's dead . . .
Let's hear it for Frankie . . .
Frankie's lyin in hell . . .
We're all Frankies . . .
We're all lyin in hell . . .
Screaming and whimpering. And "Che":

When he died
The whole world lied
Said he was a saint
But I know he ain't

All backed by an inevitable junk throb.

Apparently when Suicide played in Europe there were riots at some of their performances. In America there have been no riots because Americans can no longer feel the need to riot nor do they understand the urge. Maybe soon.

This is important music, effectively recorded. I might continue, but the light bulbs don't work anymore.

—Greg Burk

The Normal T.V.O.D. b/w Warm Leatherette

I don't need no T.V. screen
I just stick the aerial into my skin
And let the signal run through my veins
T.V.O.D. T.V.O.D.

Over the last few months certain FM radio stations have been giving a lot of airplay to an obscure single by a virtually unknown artist from England who goes under the name of 'The Normal'. Little is known about him except that his name is Miller, and that he accompanies his spoken monologues with a sparse synthesizer backdrop. Yet he is rapidly gaining a small cult following despite the fact that this is his only record available in the U.S. Previously available through import shops only, phone-in requests have led to its U.S. release through Sire Records.



Sire SRE 1044

There is something completely arresting about hearing spoken lines in a musical context. It is possible to read the dullest book over the most interesting music without losing concentration, but when one hears words spoken rather than sung, we stop and pay attention, largely because each word stands out minimally and starkly, unassuaged by the disarming effects of melody. Somehow, if something is hummable, its sting is removed. Similarly and conversely, if a university lecturer suddenly broke into song during his monologue on Maoist dialectics, our attention would be grabbed completely, however boring his thesis.

"T.V.O.D." and "Warm Leatherette" work in such a way. Perhaps The Normal's nearest equivalent would be Suicide, but whereas the latter work within established musical and social criteria—i.e. 1950s-rooted synthesizer rock 'n' roll applied to New York street society, The Normal operates in a more bourgeois, technological context.

The two "songs" concern death at the hands of the two consumer products that have become complete icons: televisions and cars. "T.V.O.D." is a monotonous, deadpan description of literal death by overdose on television. It is sparse, repetitive, yet somehow descriptive of the effects of television itself. In the song's very mindlessness it metacommunicates its subject matter. The synthesizer backdrop is a percussive, rhythmic sequencer pattern akin to an old instrumental hit of the early '70s called "Popcorn", by Hot Butter, alias two synthesizer freaks from England, who produced an international hit by combining electronics with bubblegum. The "vocal" on "T.V.O.D.", in a slightly fruity English accent, is almost a parody of B.B.C. intonation, lending it a Monty Pythonesque irony.

It is less effective on "Warm Leatherette", yet the lyrics are ample compensation. It describes, in a greatly extended, almost frozen, time span, the split second between impact and death during a car crash, in a detached yet sensuous tone, mirroring the song's title. Warm leatherette refers to the car's upholstery, in somewhat sexual terms, contrasting with the idolized, fetishistic gadgets of the remainder of the car's interior—the dashboard, steering wheel, handbrake—which ironically become instruments of death at the moment of impact. "The hand-

brake penetrates your thigh. Warm Leatherette!"

This magnetic, yet gruesome 'screen-play' takes place over a synthesizer backing track of stark simplicity; a repetitive series of chords that accumulate an oppressively seductive sense of searing heat—something like atomic radiation. Yet the vocal drones on in its commercial-spot, cozy persuasive-ness: "Warm Leatherette! Warm Leatherette!" Then, "Join. . . . The car crash set". End of life. End of song.

—Colin Gardner



Inner City IC 1056

The Jeff Lorber Fusion Soft Space

There was a time when "fusion" offered musicians the opportunity of drawing from multiple musical sources to create new forms of music. The opportunity is still around, but there are few takers these days. Instead of drawing on outside influences to create something new, fusion has tended more and more to draw on itself with the resultant one dimensional quality associated with any kind of inbreeding. Jeff Lorber's new album is yet another example of this.

The material ranges from up-tempo numbers reminiscent of Chick Corea's *Return to Forever*, as in "Samba", to more laid back cuts along the lines of Grover Washington, as in "Curtains". More notable for lack of originality are "Proteus" which borrows its rhythmic concept from Jan Hammer's "Magical Dog", and "Katherine", which is the most popular with jazz FM stations. It is an innocuous tune whose very appeal is based on its derivative sound. A surefire hit for the cocktail set.

Additionally, this disc represents one more step in the use (or misuse) of the synthesizer. All the sounds are fairly stock: the Minimoog is used for all synthesizer solos, and the Oberheim 4-Voice and Moog 15 for other effects. Lorber's use of Rhodes and synthesizer together to create a unison solo line on "Samba" is effective and lends a pleasant texture. "Swing Funk" is also a fun piece: simple and unpretentious.

The musicianship is excellent, and Jeff Lorber himself is plainly an accomplished keyboard player. It would be interesting to hear him play more en-

gaging material. Lester McFarland fairly effervesces on bass; his playing is always interesting. All other Fusion members are solid too: Terry Layne on alto and tenor saxes and flute; Dennis Bradford on drums; and Ron Young on congas and percussion.

Chick Corea and Joe Farrell guest on this disc, but they are not really needed; and my feeling is that they were added more for the sake of the drawing power of their names on the cover than for their playing ability. Whether this will have the desired effect remains to be seen, since true jazzers are unlikely to be impressed by this album; and, while the overall sound is commercial enough, most commercial listeners will probably be dissatisfied by the lack of jazz hooks.

As yet another casualty of the fusion phenomenon, this album is more likely to send you away humming the tunes it was derived from than the music itself.

—Melodie Bryant



Atlantic SD 19181

Peter Gabriel

Peter Gabriel

"I was good at the art of survival
I've always tried
To keep my troubles deep inside
Where I can hide them
Now I'm open wide."

Flamboyant, theatrical lead singers of established groups are always faced with a problem when they embark on a solo career. Do they produce more of the same, only more self-indulgently, as in the case of Bryan Ferry vis à vis Roxy Music, or do they attempt to shed their masks and disguises and reveal the substance behind the image? In the case of Peter Gabriel, the result is a little of both. Although the pretentiousness and overproduction that plagued Genesis have been minimized, Gabriel is still pounding the boards in various musical manifestations, over-acting and hamming occasionally, yet reverting nonetheless to a more modest, kitchen-sink milieu.

His first solo album, also entitled **Peter Gabriel**, was a remarkably mature debut, being arresting, innovative, and literate. "Moribund The Burgermeister", "Solsbury Hill" and "Modern Love" were as good as, if not better than, anything produced by Genesis, and although Gabriel cannot quite match them on his new album, he has also avoided the Wagnerian "Götterdämmer-

ung" pomposity of "Down The Dolce Vita". Gabriel has now become more of a vulnerable underdog, an Elisha Cook, Jr., lurking in the shadows of a '40s film noir B movie, seedier and more alienated, although not as wide open to scrutiny as he would have us believe. The album cover of Gabriel concealing himself from the camera's gaze by scratching his fingernails across his own portrait speaks more of self-defacement than self-effacement.

Gabriel is still as enigmatic as ever, particularly musically, and this album is very hard to pin down or classify, there being only five or six tracks that could be overtly labelled as Gabrielesque, whatever that means. An overall Gabriel persona is more evident when the album is played all the way through, the production and Gabriel's throaty voice being common elements that link the songs into an identifiable mould. Yet when individual tracks are heard on the radio, they could readily be identified with other artists.

"D.I.Y." for example, if one discounts the cockney accent, could easily be a Todd Rundgren song. Its predominant piano riff, multi-tracked, treated production, and vocoded vocals are very much like Rundgren's "You Cried Wolf" from his latest album. Only the lyrics really give the game away, being Gabriel's self-assertive diatribe against dependence and control:

"Don't tell me what I will do, 'cos
I won't.
Don't tell me to believe in you, 'cos
I don't."

John Lennon is evoked in "Flotsam and Jetsam", a slow ballad with echoed vocals very much like the Lennon of "Imagine" and more particularly, "Love". Gabriel sings in a very fragile, vulnerable voice over a simple backdrop of recorders, piano and bass, fleshed out by Sidney McGinnis on steel guitar, adding great poignancy to the song.

The steel guitar is also used to good effect on "Indigo", another slow ballad, this time evocative of Randy Newman's **Little Criminals** album, particularly Gabriel's raspy vocal, singing of his own loneliness and insecurity. Yet the song is also very warm, as the medieval-like recorders and steel guitar are enriched by a mixed-down synthesizer backdrop, agreeably complementing the soulful-piano.

Surprisingly, Gabriel forsakes the brittleness of Lennon and Newman for the more cloying vocal style of Cat Stevens on "Mother of Violence" and "White Shadow". The former is a bleak, simple song about the paranoia of violence: "The only way you know she's there is the subtle flavor in the air". It is built around the perfect mesh of piano, acoustic and steel guitars, the delicate balance of the instruments reflecting the precarious interrelation of fear and stability. "White Shadow" particularly features Larry Fast on synthesizer and tape treatments, creating a spacey, phased effect counterpointing a spacey, phased effect counterpointing a Robert Fripp's acoustic guitar and Gabriel's croaky voice. Fast manages to

New Releases

- Gary Wright **Headin' Home** [Warner Bros. BSK3244].
 Tony Williams **Joy of Flying** [Columbia JC 35705].
 Tubes **Remote Control** [A&M SP4751].
 Bernard Herrmann/Laurie Johnson **It's Alive Two Soundtrack** [Starlog Records 1002].
 Steve Hillage **Live Herald** [Virgin (import) VGD3502].
 Denny Zeitlin **Invasion of the Body Snatchers (Soundtrack)** [United Artists LA940].
 Bill Nelson's Red Noise **Sound On Sound** [Harvest ST-11931].
 Mike Oldfield **Incantations** [Virgin (import) VDT 101].
 Return To Forever **Live** [Columbia JC 35281].
 Tangerine Dream **Force Majeure** [Virgin (import) V2111].
 Tomita **Bermuda Triangle** [RCA ARL1-2885].
 U.K. **Danger Money** [Polydor PD-1-6194].
 Carla Bley Band **Musique Mecanique** [Watt/9].
 George Duke **Follow the Rainbow** [Epic JE35701].
 Michael William Gilbert **Moving Pictures** [Gibex, 104 Riverglade, Amherst, MA 01002].
Geodesium [P.O. Box 3023, Boulder, CO 80307].
 Hammer **Black Sheep** [Asylum 6E-173].
 Jon Hassell **Earthquake Island** [Tomato TOM-7019].
 Bruno Spoerri **Voice of Taurus** [Gold Records (import) LP 11061].
 Bruno Spoerri/Reto Weber **The Sound of the UFOs** [Gold Records (import) LP 11058].
 Rosenboom & Buchla **Collaboration in Performance** [1750 Arch Records S-1774].
 Paolo Tofani **Indicazioni** [Cramp Records (import) CRSLP 6208].

recreate the brass sounds that were the hallmark of the British psychedelic era, so effective on "Penny Lane" and "Strawberry Fields", before Fripp comes in on distorted, phased electric guitar, producing one of those tasteful solos associated with King Crimson on their first album. Fast complements this with a wordless female chorus, produced on synthesizer, as all instruments come together for the finale, only to disappear again leaving a double-tracked synthesizer motif which continues into the end grooves of the record.

Gabriel's own personality becomes most overt on the up-tempo songs. "On The Air" features the character of Mozo, a back street urchin hiding behind a comic book hero persona, as he broadcasts from his shack/radio station in the form of Larry Fast's synthesizer bleeps and trills. "Animal Magic" and "Perspective" are rock songs pure and simple, with elements of Motown, funk and r & b. The latter features Timmy Capello on sax, sounding exactly like Junior Walker.

The most electronically experimental track is "Exposure", an atmospheric, vocoded and treated piece, dominated by Robert Fripp's "Frippertronic", a series of synthesizer drones overlaying Gabriel's deep, throaty vocals, as he

draws out "Ex-pooooo-sure" à la Dr. John or Sly Stone. Perhaps the most simply enjoyable track is "A Wonderful Day In A One-Way World", where reggae, steel guitar, and eighteenth century chamber music meet Albert Einstein as a scumbag on a supermarket floor.

Yet the marring feature of this cut is symptomatic of the record as a whole. Whereas Gabriel's first album, produced by Bob Ezrin, was too grandiose, Fripp's production here is too confused. The mix is muddy, the vocals often lost in a haze of treated instrumentation, and the total effect is completely nebulous, lacking a cutting edge. We are forced to seek out the songs rather than meeting them head on, and it is apparent how much better everything could have sounded with a sparser, more open production. Clearly Gabriel is capable of excellent songs if only he could find a complementary producer who will not bury him under oceans of mire. Unless of course that is the intention: Gabriel is opening himself up—"Space is what I need, it's what I feed on"—but not at the expense of forsaking his various personae. A foggy production only helps to keep things abstruse.

—Colin Gardner

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PHOTOS: BILL MATTHIAS

Patrick Moraz

Patrick Moraz, The Moody Blues' (you remember them) newest member, is well known to many Synapse readers for his stint replacing Rick Wakeman in Yes, and his solo work. His latest solo release, aptly entitled, *Patrick Moraz*, (Charisma CA-1-2201), is an excursion into trans-cultural music, a direction Moraz hopes to pursue further. In this manifestation he plays with Brazilian percussionist Djalmá Correia and the percussionists of Rio de Janeiro. The intent is to integrate musical cultures while retaining the integrity and variety of world musics. Critical opinion seems to vary but Moraz's does not. He's going for it.

by Doug Lynner

Doug Lynner: What are your plans? Will you be doing more with the Latin percussion players?

Patrick Moraz: Yes, I think so. I've started this sort of trans-cultural experiment in musical dialogs, and I want to further this. I would like to go to different countries, like Indonesia, China, and Africa, to further my knowledge of these kinds of musical dialects. I still have one double album to do for film, a documentary on Ma-

cumba, where I'm going to play with 500 percussionists and different synthesizers and instruments. And also there is one more album I want to do with the percussion which goes farther than this one in terms of composition. There are also a few albums I want to produce in South America and Brazil.

How do you feel about your success interfacing such disparate musical cultures?

Well, I think it's an interesting process, because, you see, what I'm not trying to do is what some people, or some artists, or even some record companies, call "international music". I'll explain this. I'm trying to do trans-cultural music, which is very different. Take a chain of hotels. I won't name any, but take one of those big chains of hotels that you find everywhere around the planet. They look the same, smell the same, they feel the same, they have the same beds, the same structures and everything. Music could be that way, but that's not what I'm trying to do. I'm trying to do music that fits within the environment of each country I am going to, and fits in the dialog. And I get that from the musicians I'm playing with. Because the musicians - these percussionists for example - wouldn't play with me if they didn't feel good. And I know that it is an interesting thing to do on that level because it expands; it breaks barriers without compromises. I know that one of the writers for the L.A. Times, for example, was at the Sao Paulo jazz festival and he said that my playing sounded like two radio stations which have nothing to do with each other. I think that's total bullshit, because I know the guy who wrote that is a purist in jazz. He might be a summit of anthology about jazz, but he should be more open about

breaking barriers and integrating different sounds and cultures. My attempt is very genuine, totally genuine. I'm not doing it just to make money. I tried to take the percussionists and use them as a symphonic entity like I would have used a string section, or electronic structures of sound.

Did the musicians have any kind of input in the composition of the songs that you did with them? I wonder for instance if they ever made a suggestion about the electronic instruments?

Not really, but Djalmá Correia was with me, and gave me very strong feedback in terms of constructing the album, and we had a total relationship in terms of artistic values and the way we wanted to do it. In the battle sequence, for example, and before the opposing forces did the start of the conflict of the album, I told him, "Look, we're going to have a dialog here, it's like the war." We really prepared ourselves psychologically and physically for it. He was refurbishing his instruments and I was preparing my sounds. And we really worked ourselves all day psychologically to the evening session, and we did it in one take.

Oh really?

Yeah. But that's the way I like to work.

Is that how most of the album was done? Were you both actually playing when the...

Yes, absolutely, and that's how I like to work. I explained the thing to him, I played him a couple of ideas, and I suggested maybe he should play a 12/8 feel here, and so on. But the rest I said, "Play what you want". We rehearsed it maybe a couple of times together, but we didn't put it on tape. And when we played it and took the first take; that was it. That's why it came strong, and at the same time spontaneous. I respect anybody



"I'm trying to do music that fits within the context of each country I am going to."

telling me to try this and that. When I did the chant of the tribal with the vocoder, I was one octave too high, and he said, "You know, the black people of Africa they have very low voices", and he told me. "Go an octave down", and I did. We had a very good rapport. It was a really strong interaction - it was like a group. And I think it sounds like a group.

Was there any plan towards the live performance of this music?

Oh yeah. You see, the Sao Paulo gig was actually the first experiment on stage. I had never played on stage with them, so that's why the first afternoon in Sao Paulo was difficult just with the piano. Because I was one acoustic piano against sixteen percussionists. I tell you, when they play their sound, they're strong.

When you perform will you be the only one playing electronic instruments?

No, I don't think so. I'd like to take two other keyboard players with me. Maybe a bass player sometimes to sustain things, but mainly keyboards just because I'd really like to bring this show, and this play, this attempt at primitivism and civilisation, and make a show out of it. Originally I conceived it as a ballet, and I think the London Festival Ballet is very interested in it, so maybe we'll combine this with the ballet as well.

That would be interesting. Where do you feel that we as civilized people, and the primitive influences, stand in the scenario that you painted on your new album? Are we in battle, or...

No, I don't think so, not at all. But there is a danger which I displayed through music because I'm a musician, that one day technology may take over everything and the machines just work with the humans, and the humans...we are all machines... we are all becoming machines more and more, every day anyway. You know, we're being programmed for such and such a job. I mean, we are sophisticated machines. That's what I believe in anyway. There is a danger, but I wanted to denounce this danger and make a positive forecast, and see the primitive values and the antique values work together with the computers and the technology to make something valid together. If not valid, at least enjoyable for the people who make it or listen to it.

What do you see in Brazil about the encroaching technology?

There is definitely a lack of technology and a lack of knowledge about technology, but it's becoming stronger now because a lot of companies are investing there. There are lots of studios suddenly in Brazil, and a lot of computers and so on. But they really don't know how to operate them well. And the danger is that the people let the machines work for them, and then the machines have no emotions. Yet, you know, most of the computers are not programmed to have human emotions, but they could have. That's why in that number called "Primitivization" I made sure that the music sounded very human although it's played mostly by machines. And when I said the line, "Never

gonna feel the pain of emotion again", it's two computers making love. If two computers fall in love, the next step is that one computer is going to fall in love with another more intelligent computer; because he won't have any emotion, human emotion. But the chords under that line are very emotional and they're played by computers and machines as well. I wanted the listener to understand that, or at least forecast that the computer can be very sentient, and very knowledgeable of emotions. I know computers can do anything. I'm aware of that. Now I'm sure that in a few years computers will be able to bring any kind of music, incredible music, together. Do you think...

It seems like the possibilities are endless, but that we...

...We're only at the start, but there is such a revolution in technology: solar energy, computers, micro-processors, and whatever. That's the future, you know. It really is. I'm very excited about it, but I know that also, with the new technologies there are dangers because they are new ways of controlling people. If we are not programmed like very well behaved robots in twenty years, we are going to regret that the technology has taken over so much. There is a danger, for the next generations are already so well programmed by the new computers that they don't feel this. They won't feel it. They won't feel this kind of indirect repression from the technology.

Speaking of technology, are there any techniques you used on the new album that you are really jazzed about?

Well, the Sennheiser vocoder was really a major discovery. I see many more things to develop from the vocoder, from now on. I mean, it's endless. You know, there are so many possibilities. And I'm really going to do it. One day I'm going to do a total, complete electronic music album. I'm just waiting to be ready and motivated for it. I don't know what it's going to be; if it's going to be music which has to be listened to, or a music which could be totally environmental. Actually, one of my projects is to do a series of albums which are environmental mood musics, which you don't have to listen to, you just put on, which would take the people to all sorts of different moods. You know, like you have mood drugs or whatever.

Environmental music and sounds are very interesting. For one thing, the history of electronic music has always been one that has imposed itself. Everything was so very serious that you couldn't breathe in the middle of a piece because the piece was too important to breathe during.

Yeah. I've often made that mistake. I might have made it in this album again.

How do you feel playing with The Moody Blues?

I feel great; musically, socially, in every way. I couldn't only play with The Moody Blues of course. It is without question that I will always

be able to do my solo albums; I will always be able to do solo piano concerts, electronic music, films, jazz festivals, everything. But playing with The Moody Blues is the best of both worlds, because it's a true rock'n'roll band; they have a good rock'n'roll spirit. They're not that pretentious after all, not as much as some people think they are. And certainly less than Yes, and much more healthy anyway. And I really enjoy playing with them. We've had a fantastic reaction. Not one really major problem. We've always played good on stage, and I think they probably play better than ever. I had never heard them live before.

I hadn't either.

But I'm sure they do sound better, and certainly better than the records, in terms of power and rock'n'roll, you know; feeling.

Were they a group that you cared much for when they were going years ago?

I'll tell you what. When I started in England over ten years ago, the first English rock number I learned was "Go Now".

Yeah, that's my favorite song of theirs.

I loved the piano progression there, and I always followed their music. I knew they were the original rock-o-phonic band...

Rock-o-phonic!

...who influenced King Crimson, Yes, Genesis, Styx, Kansas, and all the rock-o-phonic bands, of this era anyway.

Do you have freedom to discover things as a musician within that context?

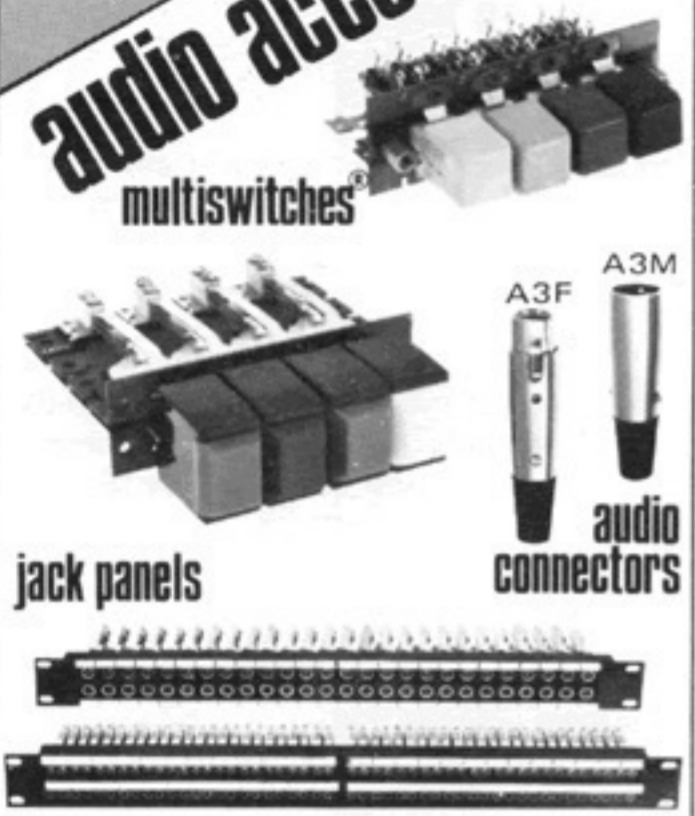
Oh, absolutely. I always respect the origin of their orchestration; I don't want to put in more than is necessary, and it's not my show. I'm not the solo artist there, I'm part of the band, and I'm the orchestra behind the band. I'm leaping it up on stage, and it's really motivated by the music and the way I feel. I don't force myself to do it. You probably saw the show the other day, and I move quite a lot, but I really feel it. Sometimes I'm very laid back, sometimes very agitated and so on. I always try to contribute as much as possible in terms of giving that, and turning them on with good sounds and big sounds. Sometimes I think, well instead of big enveloping sounds, this is more rock'n'roll or more funky, then I play more angular. I always try to be in that context and turn them on.

It seemed that you were busy; you had a lot of instruments there to take of.

They left me total freedom to do whatever I wanted. They've given me very good advice; like, they've explained to me, well here it's Mello-trons... I mean I knew it anyway, listening to the record two or three times. It's not that difficult to play, you know. I think with The Moody Blues it goes beyond the music— it's the intention with which to play the music, you know what I mean? There is an extra little thing always in music which goes beyond just playing the right note. It's the interpretation, it's the dynamic of the touch.

It appeared to me that you enlarged their

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sound considerably. The orchestral aspect was much larger and more realistic too.

Well, what they've told me is that they could, probably for the first time in their career as a band, listen to what they were playing; because before I understand that they couldn't really listen to it because Mike Pinder was really blasting through with his Mellotron with a very distorted sound, and not so much listening to what they were playing. That's what they told me. Even so, I think he was a great innovator in terms of Mellotron; the way he bent the note and the sounds he put with The Moody Blues on the first albums was very innovative, and I respect him very much for that.

How do you think touring and playing with The Moody Blues will affect your solo career?

I think it will only help. It will only help it because it will give me more exposure, and I will be able to do some things that I would probably not be able to do if I was just on my own. You know why? Because playing with The Moody Blues allows me to really not compromise at all on my solo albums, whereas if I was just on my own I would have to compromise commercially to a certain extent to sell my records. But that extra exposure I'm having with The Moody Blues allows me to not compromise at all, and I think that's a very good asset.

Do you think the current Moody Blues music matches up in terms of quality with what they were doing?

No, Octave is not as powerful. They all know that. I know that. I'm not afraid to say it. I don't think they'd knock me for that. I do think "Driftwood" and "The Day We Meet Again" are beautiful songs. I think we do better now on stage anyway. But the next album and the next ventures are going to be...

Will you be staying with them?

Yes, I'm going to stay with them, record with them, contribute to the music, and contribute to the production as well. I'm really looking forward to that.

When will the next album be recorded?

I don't know. We have already recorded some dates live on this tour, and we'll probably have an album out before the end of 1979.

It will be very interesting to see the effect you will have.

I know they look totally forward to recording with me, and I certainly do with them.

Given the variety of situations you have played in, such as Yes, it has always seemed to me that you were probably not happy doing what you were doing.

I was happy. It was OK. It was happening in certain cases, especially in live shows, and I know at one point with Yes we were very happy together. But then it became too...almost individualistic; too many different directions. The Moody Blues work towards a unity. The Moody Blues is a sixth person in the band, which is a moral person. It's a symbol. And that in Yes doesn't exist. Yes is Jon Anderson first, Chris Squire second, and Steve Howe third; then the others are just the keyboard and the bass player and the drummer in the band. I found it very difficult to work, finally, with Jon Anderson. I respect his work, I respect his voice, his ideas... but you see, when I listened to the new Yes album I felt very happy I was not in the band any more, because I wouldn't want to be associated with it. If I had to do it over again, I'd do it. What can I say. I'm happy now. I'm totally in harmony with myself, and I know I will progress and do even better. I know that. It's going to be interesting. ☺

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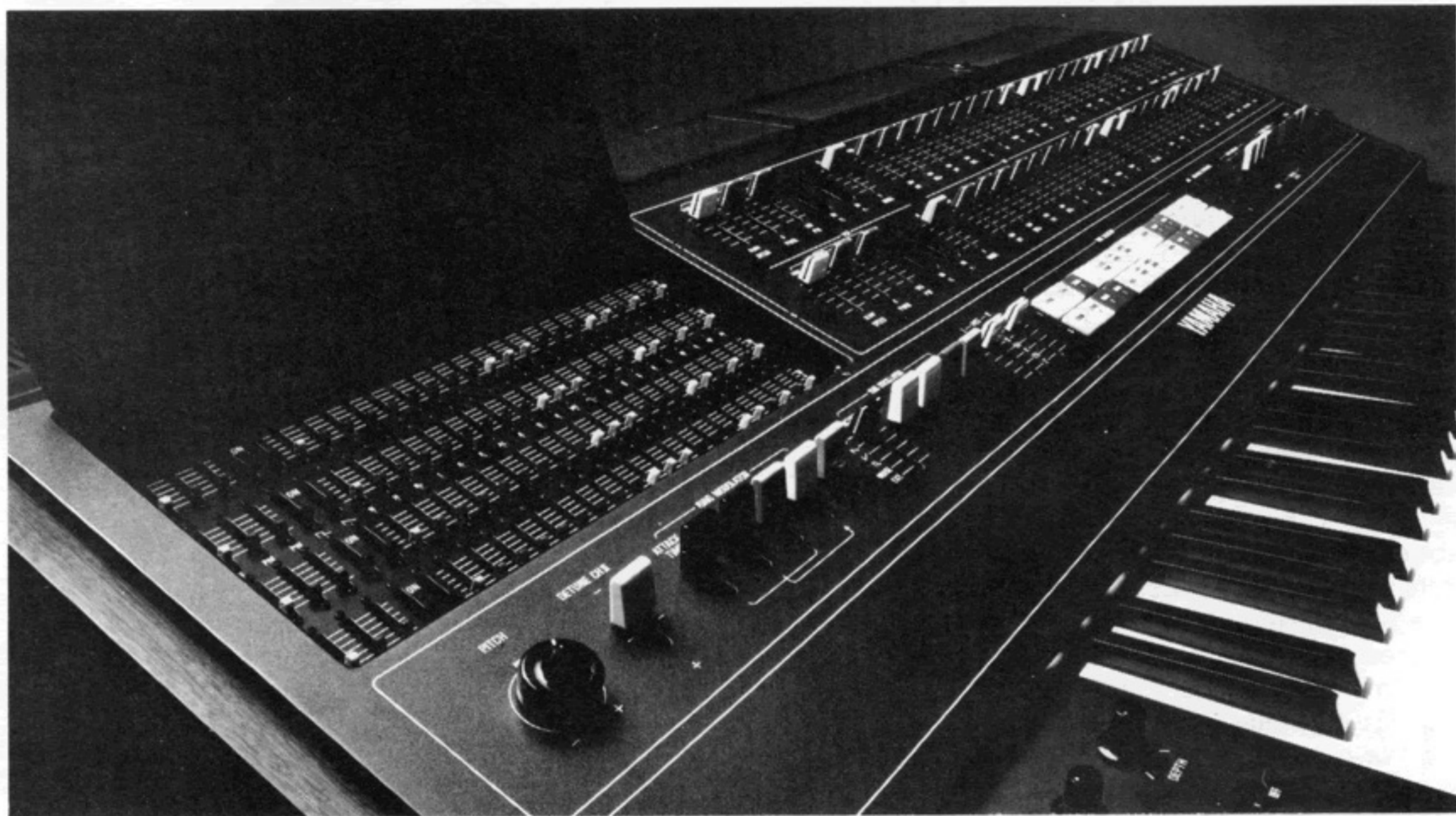
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by David Fricke

The title of Robert Fripp's long awaited solo debut is **Exposure**, from the song of the same name by Peter Gabriel; and appropriately enough, exposure is the very thing Fripp has enjoyed in the year and a half since he stepped out of a voluntary retirement he had begun with the dissolution of King Crimson in 1974. During that retirement, he studied under philosopher-economist J.G. Bennet at the Institute for Advancement of Continuous Education in Sherborne, England, as well as working on his guitar mechanics and touring briefly with Eno in Europe. However, after playing on Bowie's "Heroes" album in August of '77, the English guitarist and avant-garde journeyman embarked on a renewed career as a record producer, overseeing LP's by Daryl Hall, Peter Gabriel, and the singing-songwriting sisters, the Roches. Establishing a home base in New York City, he also appeared in a rare solo concert at a Soho loft (the Kitchen), made spot showings on stage with a variety of New Wave bands (Blondie, Screamers) as well as Gabriel, and completed **Exposure**.

In this interview- conducted in June and November of last year- Fripp touched on a kaleidoscopic variety of subjects, among them Crimson, Bowie, Eno, his work with Hall and Gabriel, the solo show, the solo album, psychological theory, and the total ineptness of the record business. That ineptness is best exemplified in the circumstances surrounding the non-release of Hall's Fripp-produced album (**Sacred Songs**) and subsequent squabbles over Daryl's appearance on Fripp's own album. Since the interview, RCA has decided to release **Sacred Songs** only after the next two Hall and Oates albums, and Fripp had to re-record three Hall vocals on **Exposure** after RCA and Hall's management objected to the singer's appearance on the record. On the finished **Exposure**, Hall sings on two tracks, while Englishman Peter Hammill sings the three re-recorded vocals (one in duet with Terry Roche).

PHOTOS:CHRISSTEIN



"I'm a bit scrappy by nature," admits Fripp, a description that applies perfectly to his dealings with RCA and Hall's people. But Robert Fripp is also a cordial, warmly personal fellow whose determination to make music- his music- on his own terms is not only admirable but inspirational. Sometimes enlightening, sometimes elusive, he is always fascinating. It's good to have him back.

David Fricke: Peter Gabriel was your first real production project in a while.

Robert Fripp: Bear in mind that I did a lot of outside production work in the early '70s- Keith Tippett's Centipede, Robert Wyatt's Matching Mole, and some rather heavy jazz albums that weren't released. But since my more active participation after my three-year retirement and

return to work in August '77, what I've done is the David Bowie album **Heroes** which I played guitar on, and producing Daryl Hall's album- which because of the degree of collaboration will be released as a Fripp and Hall album.

What sort of record is it? It must be considerably different from Hall and Oates' more commercial records.

Put it like this. I would like it to be my solo album because I like it so much and there is so much of me in it. It was officially Daryl's solo album, but there's an awful lot of me in it, enough so Daryl is very happy to have it a Fripp and Hall album. It's very, very Fripp. A lot of the songs involve Frippertronics.

What are Frippertronics?

Frippertronics is the name I give to the loop technique I use which I learned from Eno. It's something like Fripp and Eno without Eno. Eno introduced me to the system which I have learned to organize on my own and instead of using it as an extended solo piece, I have developed the technique so I can use it as an accompaniment to songs, pieces, whatever.

"Minimalism...if you want to interpret that in terms of brevity, I would far rather hear 3 notes summing up everything than 100 notes."

Back to Daryl; he is an incredibly good singer. He sang on a piece for my album- Ian McDonald recorded some flute for me, too- and this piece Daryl sang for me is one of the most remarkable vocal experiences in rock'n'roll that I have ever heard. Basically it was a song about... did you ever read *Sanity, Madness, and the Family* by Laing and Esterson? The gist of the book is basically that your parents make you crazy and that there are certain schizophrenic families that seem to produce schizophrenic children. It is a wholly terrifying experience, this book. Take for example: a child perceives, he interprets a certain experience as 'A', which the parents then contradict, saying "no, the experience is in reality 'B'." So after 15, 16, 17 years of having one's experience contradicted, that person becomes what is technically labeled schizophrenic.

How do you relate this to musical terms?

You must listen to this song. It's terrifying. The terrifying thing is that an experience like that can be translated in a controlled and directed musical fashion so that the vocabulary and the intellect, if you like, is taking all this down without losing any of the feel. And then you hear the vocal. Daryl came in and said that was like primaling." We couldn't believe we quite heard it, so we played it back. It was terrifying. We sat around for five minutes before playing it again because we didn't believe we heard what we heard. It's an interesting blend of pure passion and ruthless control and mental discipline and rigor. For example, when I talk about my own album, I'm in a state of considerable confusion. I've never recorded a solo album for myself, so when I put my name on it, I'll have to accept the responsibility. With King Crimson, King Crimson was never Robert Fripp's band.

It was a collective situation?

Yes, it was.

But with Crimson, you always seemed to be the one stable element.

Few people who know me would call me stable.

A solo album really illustrates the theory of taking responsibility for everything you've done.

In one sense, yes. In one sense, it's only a fully developed man who would be able to accept responsibility for his actions. But fortunately, we rarely see what the responsibility and the implications for our behavior really is. If we did, we'd be wholly terrified... but here you get into very difficult intellectual and cosmological ideas that aren't worth getting into.

Do you relate these ideas to the musicians you work with?

Yes, throw them straight in. The quality of musicians' minds in my experience is generally very poor. One has to go somewhere far more real in them, and the way to have that directness is not through the mind.

Can't be solely through the emotions?

No, no, no. It needs to be far more direct than that. Emotions will do and often in a practical sense, one has to settle for that. There are a number of different techniques in recording. This comes back to Daryl's and Peter Gabriel's albums, if you like. I don't like theorizing.

As a general comment, what I particularly like about rock'n'roll is that it serves as a direct communication, direct link, between the player, the instrument, and the people listening. If one is playing, for example, Mendelssohn's First Violin Concerto, you'll have to play the instrument for a number of years, study very hard, and then communicate what one man thought 140 years

ago to someone else with an orchestra of different sundry talents, a conductor of varying background and experience- none of which was Mendelssohn's anyway. And you end up with something wholly insipid.

And you have this difficulty because of the number of generations you come from- the composer- having to translate it through the mind. For example, if you read music, there is a whole load of associations you have to get by before the music actually gets into the body. For me, for the more difficult things I write, I commit it to paper and then try not to let anyone else see the paper. So the music I do or want other people to play goes straight into their bodies.

For instance, *Larks Tongues In Aspic* was pretty complicated until it went into the body and was pretty straight forward. But I refused to record it until King Crimson toured with it, so that the music didn't come from the mind. It was just in the body. We weren't concerned with the calisthenics of playing in 7/8 over 13/8 or whatever it was.

So what I'll do with Daryl Hall is give him the words and say "Right, go and sing it." He'll have no idea of the melody. He'd just go in and somehow find someplace in him that knew what it was about and come up with it- in one take. On his album, where he knew the material, I got five master vocals out of him in one hour, all first takes.

With me, the musicians know that they get three takes, and if they don't get it in three takes, they go into another one or go home. Or else, they beg me to let them do another take because they feel they can get it. With Daryl's album, most of the rhythm tracks are first takes, some of them are second, the odd one is third. And that's it.

You've done Hall and Gabriel records and now you've done your own. Are you voluntarily withdrawing into the free agent position you're in now?

The position I'm in is the result of lots and lots of hard work, trying to maintain the quality of my work. Integrity is not a word anyone with integrity would use about themselves- so I'll use it.

I was always brought up in a business world so working in business with business people doesn't phase me. I find that I'm actually sharper than most of the business people I meet. I have the edge that really I'm not desperate. I don't have to do anything.

What about your record?

I'll be quite specific. All that one needs in this instance is intelligence. My point is that the business world, specifically in America, is not intelligent. It is dreadfully conventional, the wisdom of what one does in rock'n'roll. But with a new approach, one can do remarkable things. And my approach is this. If one wants to make a record, with different reasons, I make the very best record I can. I then say, "Do I believe in the record?" Well, I obviously do or I wouldn't have made the fucking thing. The question of how to sell it comes once one has the record.

You have a very interesting guitar style. It doesn't seem to bear any influences, almost as if you eradicated them.

I was listening with Ian McDonald to a piece of music we recorded ten years ago and you probably wouldn't have said that then. Yes, obviously there are influences. My first was Scotty Moore, closely followed by Chuck Berry and Charlie Gracie.

"Butterfly"?

No, before then. "Butterfly" was the end of Charlie Gracie's career. Go back to "Fabulous" and "Just Lookin' " on Parlophone in England. That was hot stuff.

But when I started playing guitar, I was tone deaf and had no sense of rhythm. The reason I never picked up anyone else's licks was that my ear was so bad I couldn't learn them. And I remember sitting down with a Chuck Berry record when I was fifteen and it was going through my brain- how on earth could this man be playing this thirteenth and this augmented ninth? It took me a couple of years to realize why Chuck Berry took these extravagant notes. Simply because his playing was so appallingly bad it would be wherever his fingers would fall and very few people would dare to play as atrociously bad as Chuck Berry. Except he would do this with an amazing feel. My present situation is that the farther a player is from any kind of intuition or awareness of what he's playing, the more I enjoy it.

Isn't that too random, divorcing oneself from an awareness of what one's playing?

No, on the contrary. You have a direct awareness of what you're playing. What interests me about rock'n'roll is that it is a very direct experience.

You once said in *Guitar Player Magazine* that as a guitarist, Jimi Hendrix was doing it all wrong, something that stirred up quite a reaction from readers.

I said Hendrix had an appalling technique and that upset a lot of people. My background is this. I was taught to play the guitar, beginning at age eleven, twenty and a half years ago. I worked very hard on a calisthenic basis. I was appalled by the quality of guitar teachers available. As I still am. Quite deliberately, at the age of fourteen, I began to develop my own approach to guitar technique to find the calisthenic system of guitar playing because plectrum guitar is a hybrid technique, as contra-distinct to piano playing where there are two or three different schools that you can learn. We don't have that with plectrum guitar playing and I set myself the task at age fourteen to devise one which I have since done. I began to teach guitar when I was fifteen to lesser pupils, then again at seventeen. Al Stewart was one of my pupils when I was seventeen. Then again, when I was twenty one, I gave lessons out to Yoko Ono's first husband, Tony Cox. Then I didn't start teaching until I was twenty eight or twenty nine. And I felt for the first time I had any qualifications for teaching. Guitar mechanics as a subject was a bit more developed and I gave some lessons in England. It was still experimental and for two pupils it had a very strong effect psychologically which was part of the exercises involved.

As a system, guitar mechanics is the most viable form I know of accelerated learning on plectrum guitar. Simultaneously with that, you will note the paradox that all the people who interest me the most would not get near a system as refined as guitar mechanics.

Is it a system that can be put into a little booklet?

At the moment, it's not fully developed in the sense that it's still developing. Yes, I could publish at the moment, two volumes, and it's still growing. But it's a question of time, what's more important at the moment.

What about your guitar solo on Eno's "Baby's on Fire?" Did you have that planned out according to chord sequence, dictated as it is?



Most of the work I do... first of all, I don't do sessions. But I do play on a few albums of friends or people I admire. And with Eno and Bowie I don't sit and listen to chords. They put the music on and I play. Most of the recorded work for both Eno and *Heroes* is all first takes before I learned the chords. It's an immediate reaction to what I'm hearing for the first time and the technical aspect of it is that one doesn't play over changes— one plays over key modulations. And that obviously involves a little experience.

But that solo seems to reach up into different places...

Yes, but you see, for me, working within the confines of King Crimson, where it seemed to me that all my efforts were made to offer up opportunities for other people and none of the other people were interested in reciprocating and opening opportunities for me. So I felt very inhibited as a player in King Crimson and had to accept that the people in King Crimson were simply not giving me any room. They would fill the room for themselves.

Don't you think these people were intimidated by your own musicianship?

No. Nothing to do with that. So with "Baby's on Fire," Eno has this capacity which brings out the best in people or he gives them the confidence to do what they might be able to do. To use an analogy- I bring out in Daryl Hall what Eno brings out in me. So Hall has opportunities to do his very best work with me as I had opportunities to do my very best work with Eno. Simply, Eno is the first person I worked with who did not restrict me but help me. And of course, he didn't get in my way because he didn't play anything. Because he worked from an area more interested in terms of process and the whole systems approach...

As for your solo album, when you sat down to do this first one, what sort of pre-conceptions/ideas/apprehensions did you have?

First of all, I don't have confidence in what I'm doing. You see, if I had to go in and mold the artist— this is a Bob Fripp record featuring Peter Gabriel— all I would be trying to do is get the artist to be the artist. I feel confident I can get out of the way a lot.

But with Robert Fripp trying to discover Robert Fripp or accepting responsibility for Robert Fripp, that is different. I've recorded a lot of different material, enough for at least two albums, most of which I'm discarding. I have enough for six different artists, each of whom is fairly versatile. I'm beginning to discover the cohesion in what I'm doing. And it's just beginning to settle down into a style and personality of its own.

You've recently come out of a period of self-

imposed retirement. Do you feel you're reacquainting yourself with music, the music world?

I didn't decide to come out. It was a gradual process. But retirement for me was always a state where one would use one's time more profitably. And coming back, I felt— doing Bowie, Daryl, Peter— a sense of freedom in the situation that increasingly dissipated towards the end of Peter's album. And as soon as I hit mine, I was back in the morass of confusion which was always part of my life in Crimson.

The confusion in *Crimson...* was that a problem of dealing with personalities, them not giving you room musically?

Yes, but it was absurd of me to expect that they would or could in terms of me being the band leader-figure. I did feel ripped off.

When did this occur to you, at what point in King Crimson's life?

I became increasingly frustrated through 1973. But for me— because I wrote a lot of the music, if you like, influenced the sound, that any satisfaction I received was more in that area— not as a player. And I still have the same confusion in that sense. Very few plectrum guitarists know what is possible from the instrument and I feel I do. To be a virtuoso is something very real in terms of an instrument and the word is often misused. I feel I know what it is. I am not a virtuoso. I know what is possible and how to become a virtuoso except that things take me away from that. For example, I happen to be a very good record producer. I happen to write some excellent music and I happen to be interested in things outside the music world. For me, there has always been the dilemma of whether to follow the possibilities I have purely as a guitarist or to develop as a person in a more general sense.

Being a virtuoso could be very limiting, in terms of trying to attain a certain technical proficiency.

Yes, but to actually scale that height and throw it away demonstrates a very real point for people about values. You see, I feel there are many things I can do that are off-the-wall because I've demonstrated... let me think of a nice analogy... You can only throw something away when you have it.

To attain something, to be a virtuoso and then throw it away is to say I've gotten as far as I can go...

And it gives you considerable freedom because at that point you have no baggage to carry.

Can you really throw it away? Maybe subliminate it?

That's an interesting paradox. As soon as you throw it away and you realize it's worth nothing, only at that point can you begin to do something with it, are you free of the technique. Guitarist "A" always has to demonstrate. I can play anything I like. He's limited by his technique. I have freedom from it. But since I do have the technique, I can use it or not. And that's the freedom.

But when you started your record, you say you didn't have any confidence.

I didn't have any confidence in myself as a player or writer or anything. I think it would probably come from the conceit that is wholly irrelevant whether whatever I do is good or bad. The only thing of interest to me is that I'm making a record so get on and make the fuckin' thing. It will actually be both.

There are some very novel ideas on it. I'll give you an idea. One of the most important things in my life was reading the transcript of the talk I gave on July 18, 1974 and it took the top of my brain off. I was never quite the same person after. And I have the tape of this talk which runs for about forty-five minutes and I wanted it on

my album. But I found a way of reducing it to six seconds. I now have that talk completely intact, in code, as it were, using one of the techniques of intergalactic communication. I could take it down to half a second and it would all be intact. It's incredibly obvious... I took that tape up something like five hundred octaves. It's a long way to go, but I could take it up farther... to two thousand, four thousand octaves.

Isn't there a point of limitation?

It's limited in terms of frequencies you can put on the tape. But in terms of what I'm trying to convey, something would still remain. And using this technique, it would be possible for me to put on tape— and hence on the record— a tape recording of every book that was ever written and I could put it on in one second, so that one could experience everything that's ever been read or said in one second... or less. Easily. It's a very simple technique. In fact, it's so simple, it's not worth talking about. This is what you call deliberate mystification.

Your musical appearances have been limited recently, except for the Peter Gabriel tour and your solo concert at the Kitchen in New York earlier this year.

The Kitchen was important, not as a musical event, but as a way of doing things. King Crimson, for me, was always a way of doing things. Some of the music was good, some wasn't. But it stood up as an event regardless of the music and the music was only the excuse for what happened.

For me, this was an experiment where the audience were as active as the performer and the audience had the same responsibility towards the event as the performer.

I declined to use an elevated platform— I was on the same level as the audience and expected them to put the work of attention and concentration into following what I was doing in the same way I was. I gave them the right that they needn't applaud. I didn't feel applause was necessary for the occasion.

I had hoped for myself to ask the audience not to applaud since I felt it would intrude. But I was told by Joanna Walton [who performed at the concert with Fripp] that this would be presumptuous, to tell the audience how to react. In the end, the audience applauded very generously. The spirit of the entire occasion was remarkable.

And I'm sure it was not necessary to have a technical understanding of what you were doing to feel what was being created...

You see, my difficulty in taking that concert into a large theatre is that people would come along and expect to be supported and in that event I was in no way supporting the audience.

The feedback I've had from the Kitchen is very much along the lines of... that without being able to rationalize what happened, people felt that something took place without knowing exactly what it was. Something very real happened that day which had nothing to do with the people involved. And the challenge is to find a way of constructing a situation which is not constructed.

In your work with King Crimson, especially in touring situations, did you ever feel that with Crimson you were also trying to break down the standard context of performer and audience? Crimson never seemed to be locked into that "rock star" circle.

Obviously, to a degree, Crimson was a way of doing things. It was a way of reconciling incompatibilities in a number of different senses. But increasingly it became apparent that it would be impossible for me to achieve what I wanted to do either in that context or with those people, which is no put down on their musical abilities. But I think probably Bill [Bruford] and John

[Wetton] were too good as players to grasp my interest in non-playing.

Too close to being virtuosos?

They were simply very good players. They didn't think conceptually. They thought as very good players would think. I said to Eno, "You obviously have this problem where you can rarely use excellent musicians because you don't feel you have the authority to work with them." If Eno got a bunch of really good players, they would ask him what happens on the fourteenth bar when they hit the "five" foot. Eno doesn't have that background. So generally, Eno works with non-players who are more interested in the process than the technique involved. For me, it's a difficult balance between not being interested in the technique and at the same time using those techniques in a writing sense in a fairly sophisticated fashion.

Do you feel you've come to a point where you can resolve that paradox?

It's a discipline. You submit yourself to discipline and then you jump off a cliff. You have to take that jump.

There is a piece on my new album called "Breathless" which is basically heavy metal but is heavy metal a la Fripp. The middle has the rhythm section playing 33 and 3/8, the guitar in 9/8... It conveys a feeling. There is a certain feeling conveyed by that which takes a measure of sophistication and intelligence to achieve through writing, and I feel I've achieved it. But when you listen to it, one is only struck by the feeling one gets through this music, not by, "Hey, the rhythm section is playing in such-and-such a time..."

What about the minimalist tag laid on things like the Fripp and Eno records? There are so many definitions of "minimalism..."

Well, if you wish to interpret that in terms of brevity, I would far rather hear three notes summing up everything than one hundred notes.

Like six seconds summing up forty-five minutes?

Yes. You have to have the understanding of what's going on, to have internally the other ninety-seven notes yourself. If you have those, you only need the other three.

People have a tendency to associate punk with minimalism as well as Fripp and Eno, as a compact communication, impact. Do you think any of the punk music has made significant changes in the making of serious music?

I have waited six, seven, eight years to hear what I'm hearing now. At last, young musicians are playing with a commitment and enthusiasm, while the generation I came up with has long since receded into expensive homes, jets, and lifestyles. I am so pleased to hear young mus-

icians saying, "What the fuck has happened to the generation of musicians above us? They really seem dishonest." To which I say, you're right. They are. Obviously a fair proportion of the bands aren't any good. But they're enthusiastic. I'd rather hear something with a little content and plenty of enthusiasm than something with no content and no enthusiasm.

Can you explain the process by which you record with Eno?

The activity that went into *No Pussyfooting* was that I went 'round to Eno's house with a girlfriend, had a coffee, and a glass of wine. I said, "I brought my guitar." He says, "Plug it in here." I plugged it in and played for twenty minutes. He wound the tape back and I played on top of it, and that was Side One of *No Pussyfooting*. With *Evening Star*, we did Side Two in his front room, too. It's a very informal relationship.

Is it an intuitive relationship, where you understand what the other has done and is doing?

We know each other better now, but before we didn't really know each other at all. I like Eno very much, a very interesting bloke.

Why did you release Side One of *No Pussyfooting* like that?

Well, I didn't like it, you see, at the time. But Eno said three weeks later, "Come around, listen to that, it was good, y'know." So I went around, I think with another girlfriend and I listened to it and it was very good. We fought with our management and record company to get it released and they did everything they could to stop it. They couldn't understand it.

You had quite some problems getting that album released, so I was surprised to see Island's Antilles label put out both Fripp and Eno albums.

In a manner of speaking, they put them out. They were bullied into it. Our management company and Island Records did all they could to fuck up Fripp and Eno and only under pressure from Fripp and Eno personally did they actually give in and release them. The idea was since we made it so cheaply at home, we wanted to pass on the cheapness to the public, not saying that the music was cheap. It's just that our costs were low. Unfortunately in America, your discount record system doesn't really exist. So in America, no matter how discounted a record may be in Europe, you have to release full price if you want that attention. Our English record company were not intelligent enough to allow for that.

If you find America and its business techniques, among other things, so horrifying, why did you move to America?

Part of my education. Now I'll probably go somewhere else.

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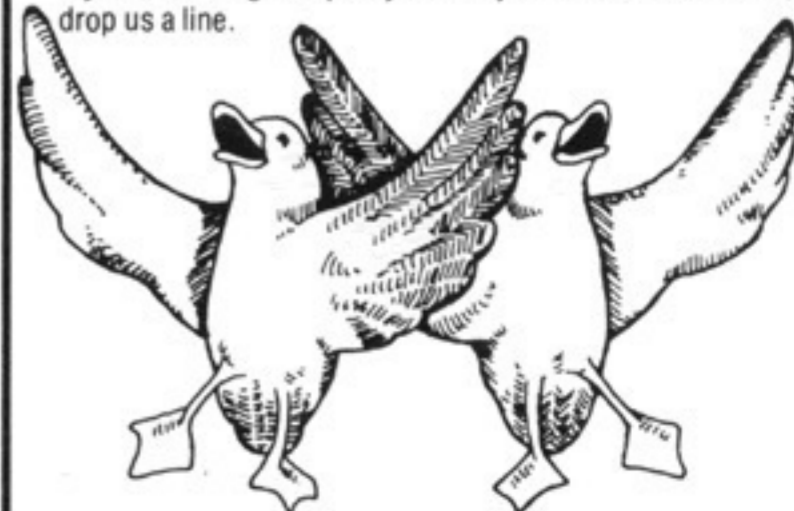
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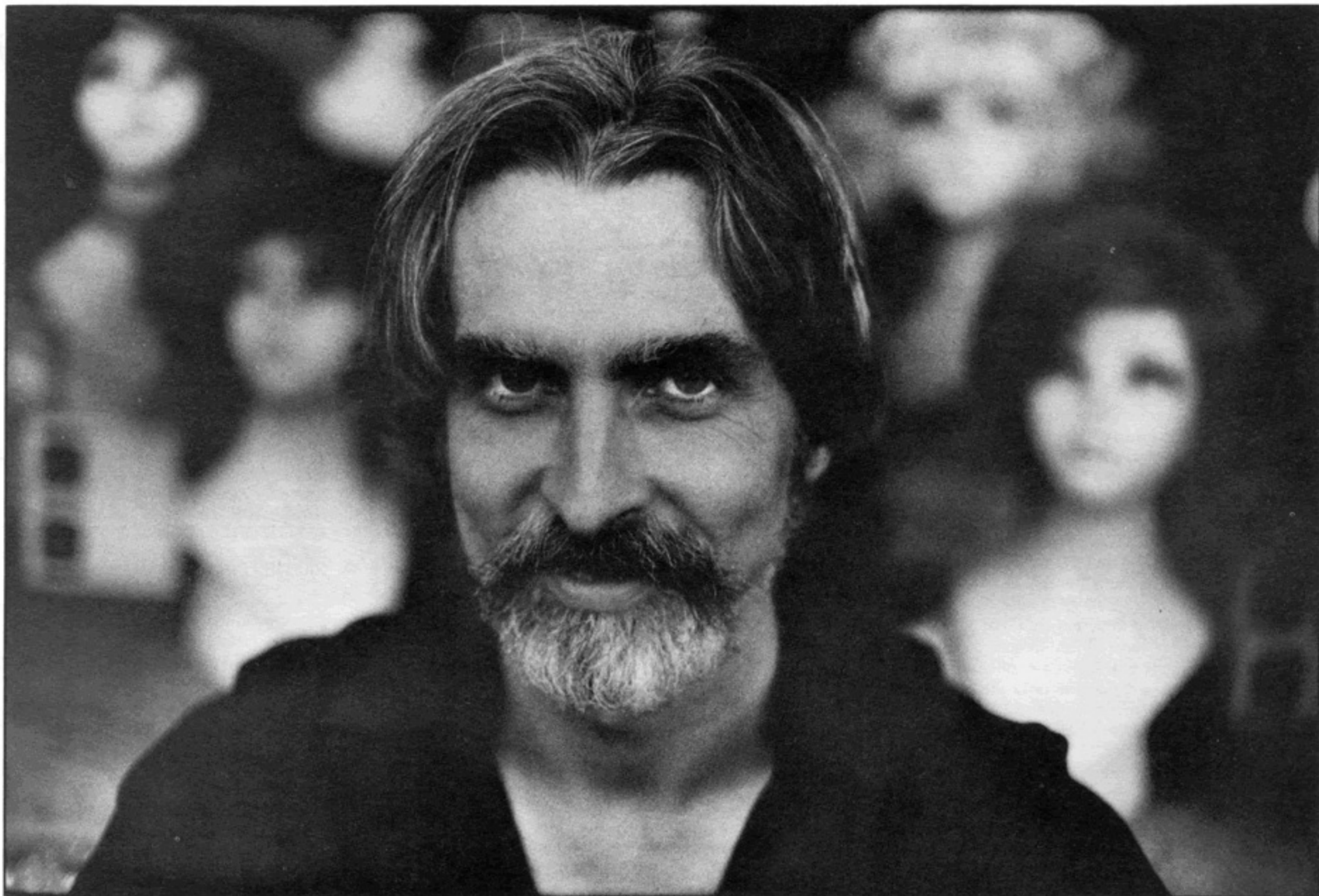
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PHOTOS: RICHARD PETERSON

by Doug Lynner

Pat Gleeson's third solo album, *I Just Got Here Myself*, was completed in early November of 1978, and was expected to be released by Mercury Records in January 1979. The record is Gleeson's first release of his own music and a clean break from his jazz and pop imitative synthesis of the past. The music is "pulse" music but bears little sonic resemblance to the musical styles of Tangerine Dream, Klaus Schulze, Michael Hoenig, Steve Reich, Terry Riley, or Philip Glass, but instead occupies a strange and tentative space between popular and classical. Possibly it is for this reason that Mercury Records decided not to release the album. Although giving Gleeson what I consider a fair chance is not the record company's concern, it is a shame as it is Gleeson's most musically honest and mature effort to date. At this time it is not clear whether *I Just Got Here Myself* will be released or not, but there is little doubt that there will be more, and I hope uncompromised, Pat Gleeson.

Doug Lynner: You have mentioned to me that you think of the new instrument you've assembled, and the music you have written for it, as related to each other by the same process. Explain that relationship.

Pat Gleeson: I felt in some ways that my career had really come to a dead end with *Star Wars*. I tend to flourish in an exotic environment and the whole studio use of the synthesizer has been, I think, de-exoticized and normalized, and funkified. History repeats itself as farce. People are doing on disco records now, with minimum subtlety and a maximum of clear insanity, the kinds of stuff that I was somewhat alluding to when I was working with Herbie [Hancock]. It's like a lot of things; once you take them out of the closet they lose their power. The timbres which dare not speak their names are mixed up front by "producers" that are brought in because they are disco DJs. So that's over for me, except as a business matter. I saw very clearly in doing *Star Wars* that the more things got to be pop for me, the less I liked what I was doing, and the less beautiful I thought the result was. And yet I was still way too far in right field, or left field or whatever; in the wrong field as far as commerciality.

I also felt that I had said what I had to say, at least for the time being, about imitative synthesis, in *The Planets*. I know what would have made that album more saleable, but I didn't want to do that. My only regret or disappointment about *The Planets*, which is a pretty considerable one in a way, is that the synthesizer is such a 'declassé' kind of instrument, that no legitimate critics even gave it a bad review. The reviews were

overwhelmingly good in the area of general music critics talking about synthesizer music, but no one ever criticized it as a musical interpretation, and that was one of the things that I paid a lot of attention to. I listened to other conductors' versions, thought about what they were doing, thought about the different approaches, got out my stop watch and noted tempos at various places, the nature of retards and so on. The only person who ever addressed that issue of interpretation was Carlos.

So I wanted to do something which was genuinely new and have it evolve out of my own composition. At a certain point it became obvious to me that what I wanted to do was to compose structures which were best realised on a synthesizer, and I had the microprocessor keyboard, so of course the idea occurred to me of sequencing in a more elaborate and flexible way than had previously been done. And in a way I was back and picking up where I left off before I became a professional musician; because when I was an amateur, I was making Terry Riley-esque music. In fact, I performed it around Northern California in colleges and art museums and such, in the late 1960s. I was stuck in these really small structures and I couldn't figure out what the hell to do. I remember making a graph on music paper of overlapping half arches that represented mathematical relations of one structure to another structure in which there were longer structures overlapping. Then I began to compose pieces which had those elements in them and I would begin this complex interaction at a very small unit of rhythm, where for example there would be a 3/8 rhythm underlying a piece which



"There are not many guys in their forties trying to establish a musical identity and career."

was both in 9/4 and 4/4, so there would be certain mathematical products which these units would tie together. And this would obviously be the longest sequence composed of the various sequences. So what I'm doing is linking smaller sequences together to form longer sequences. I think at first I was trying to hide the seams and this past year has really been a year of coming out. Calling the album, *I Just Got Here Myself*, is a little pun on self-realization: myself is what has just gotten here. As I began to work more with these structures I began to realize that I wanted both the restrictions and limitations of a live performance, as a legitimate restriction on what could be done sonically and organisation-

ally. I think it really clarifies the music. The side that I've decided to hang the blanket title, "Draconian Measures" over, is largely not overdubbed. There is probably only a half dozen overdubbed tracks on the whole side.

I think that was a useful discipline, because one of the problems there has been for synthesists is that you really need some resistance from the limitations. The sonic limitations of an orchestra, sonic limitations of a string quartet, or whatever, are legitimate and useful limitations.

So then I began to conceive of an instrument which would make it possible to do this, and at that point began haranguing the guys at Emu. Eventually I arrived at a block diagram of the

system, and at that point Dave [Rossum] began to be interested. So we came up with a standard computer-sized voice card. It's a modular system exactly in miniature. Instead of patch cords you have switches and wire wrap, and instead of big pots you have little tiny turn pots that you turn with a screwdriver. Each one of those 10 by 12 cards is a good sized monophonic modular system. That took care of the orchestra. Then I realized for variation in the orchestra, you need to be able to tell the instruments about certain changes, which necessitated then having another panel which would interface with about 200 VCAs and oscillators, which would serve as control voltage masses that could be applied to the voices. One knob will detune 150 oscillators. This is for the big sound. The two Prophets would then be used for rapid switching for special effects, solos, whatever. These are 10 voice Prophets, but we're only utilizing 8 voices because that's the way the tie lines run. The next task was to figure out what the need was in percussion, and without having developed the music, I designed the percussion section. I now feel that it was overkill. In the process of all this, the instrument became more real, the composition became more directed to that instrument, and the need for changes in the instrument became more apparent. It's been a thrilling year for me; of risk, and of self-realization, I would say.

Why do you prefer the live compositional constraints over those of the studio?

There's something not right about music which is only performed in the studio. It's very difficult to stay musical. Probably because music is a performance art and I think that the most beautiful statements you make in music are for an imaginary audience, and that imaginary audience just gradually dims and then goes away in the studio. And also of course, the process of overdubbing one line at a time is a terrible way to work. In performance I can do something which is so simple that I even have to question its musical legitimacy. Can anything that simple be musically adequate for...for a guy as complex as me [laughs]? For him maybe, but what about me? But it works. The music is very specific in a way. It's pulse music but it's much more specific, I think, than most pulse music. And it has a certain elegance because of the means of realization. One thing I've discovered about making music this way is that the machine promotes honesty. It also promotes exposure, which is scary.

Promotes honesty? I don't understand.

There are certain kinds of orchestral techniques which are essentially diverting rather than explanatory- they are somewhat like conjurers' tricks. You get them to look up here while you change this down here. If you try to orchestrate that way a great deal with this instrument, I discovered that you're really fighting the machine. That's what I meant by honesty. You really have to use the instrument to reveal, because there is no time to do anything else. And I think that's why even though the machine is very specific and is designed for a certain kind of music, I don't expect to be bored by it very soon because it is really a lot to handle, and it's going to take me several years to achieve what I have already fantasized achieving with it.

I don't know if you have read any of Jim Morrison's poetry, but he talks about us needing heroes that live for us and whom we punish; heroes that live and die for us. In many ways it seems the right scenario for a hero, and a guy like Nixon is a very good contemporary example. I don't think electronic music has had any heroes.

Continued on page 42.

Synthesizers & Recording

by Mark Styles

Synthesizers and Recording

The purpose of this article is to shed some insight for the budding synthesist as well as recordist. The true value of the synthesizer is becoming more obvious now that it's had time to develop and go through a few generations. Today there are available string machines, solo voiced synthesizers, percussion synthesizers, polyphonic synthesizers and even a few instruments that fit into all of these categories.

The synthesizer is a true chameleon of sound. Its versatility has made synthesizer practically a household word. One person with a modest amount of theory and keyboard technique can generate his own orchestra. The intrigue of a modular system lies in its capability to create a custom unique sound. Since the synthesizer can explore tonal areas still generally inaccessible to other instrumentalists, this article is addressed to helping people develop their own technique in exploring this area of sound.

Knowing Your Equipment

The first thing the recordist should be aware of is the machinery with which he is dealing. There are many different types of synthesizers, mixers, signal processors, and recorders. What equipment you have is not the issue, it is how you use it. A surprising number of sophisticated productions have been done on four track machines.

First of all, carefully read your owner's manual, learn about the optimum recording levels, and care and maintenance of your deck. The most brilliant of music won't make it on an out of alignment and dirty tape deck. Check output and input specifications of the different pieces of equipment you will be using (keyboards, mixers, decks, etc.). You will need a line transformer if you use effects designed for guitar use (such as echoplexes, phasers, or sustain pedals). Line transformers are devices which raise or lower the impedance of a signal to make it compatible with other signal processors. If you have a very weak or a very loud distorted signal, chances are that you will need a transformer. For instance, if you wanted to submix three tracks and phase one track in the process, you might need two transformers; one before and one after the phaser. Or you could get by with one, by going back into a mic level input of your mixer or deck. The keyword when working with synthesizers is experiment. For instance, try using the VCA out of the ARP 2600 into a line in of a tape deck, rather than the low level out and a mic input.

Tape

Use high output, low noise tape; master quality if you can afford it. If you plan to do much bouncing of tracks, it is worth the extra money not to be constantly subjected to tape hiss. Scotch 250, Ampex 456 or equivalent is the best to get. Chip in with someone and buy bulk or get just the hubs and roll your own.

Do not use cheap house brands or reject computer tape. Sure it works; but it's likely to flake and clog up your heads, or worse, wear them

down. Save money by buying something less expensive, but still high quality for your dubs.

Use the high speed of your deck. 15ips is the optimum compromise between noise and tape cost. Each time you double the speed of a tape you raise the frequencies contained one octave. At 30 ips, you can shift most tape hiss beyond the range of hearing. A few decks sell accessory capstans that will shift the speed of your deck up one speed. Bear in mind this doubles the amount of tape you use, however.

DBX or Dolby are both great if you can afford them; but careful and conscious recording techniques will allow you to do a lot before you run into excessive noise.

Getting Ready To Record

Before you begin to record a piece, notate the instrumentation or sounds you plan to use. Plan out how many tracks you need and which should go down first (obviously you can't do a solo without a rhythm accompaniment to go by). A few minutes of planning here will save you hours of frustration later. After a few tries you should be able to develop a suitable method of notation. I use fairly conventional names for instrument sounds, but any name that symbolizes the sound for you will work. This notation can be as simple or complex as you need. It could be a whole score or just a simple time reference. (See fig. 1)

A great advantage of the synthesizer is the fact that you don't have to use microphones to record them. Thus it is possible to get a cleaner sound. The recording level for most signals should be about 0 db for the best signal to noise (s/n) ratio. Percussive sharp sounds however, should be recorded -3 db to -5 db. Generally meters are too slow to register transients. Distorted percussion can be very hard to detect; although the levels look fine, you might detect a faint roughness to its sound. Try recording the percussion again at a lower level.

Sometimes, a little bit of dirty signal might be just what your composition needs. Don't be afraid to experiment with echo pedals, sustains, phasers, etc. I find usually the best sound is a mix of the direct and the processed signal. This gives both the desired effect and clarity. Putting a synthesizer through a sustain box, then a guitar amp and miking it can make your guitar licks more realistic.

If you have a good amp and a spare room beside your studio, you can get some interesting sounds by experimenting with the following setup. Patch your synthesizer to the line in of your deck; also send the synthesizer output to a guitar amp in another room. Start by miking the amp as far away as possible. For each foot from the amp the mike is placed, you get approximately one millisecond of delay. Boost the treble on the amp to compensate for the distance. By playing with the mike distance and the balance of mike and direct signal you can get a lot of interesting sounds. This can be a good way to thicken the sound of some tracks. (See figure 2.)

Click Tracks

When recording a piece, the first step is to lay down a time reference. This reference, known as a click track, usually is a low frequency sawtooth, pulse, or a gated sine wave. Depending on

your system, there are several ways to generate and use clicks. Their primary function would be to advance sequencers, fire envelopes or pulse switches. One method is to record a pulse or sawtooth at a moderately soft amplitude, -3 db to -7 db. This reduces the chance of crosstalk or bleedthrough to another track. Record more than enough click to last the length of the tune.

Most pre-amp sections of current synthesizers consist of a pre-amp and envelope follower. The envelope follower puts out a voltage proportional to the amplitude of the signal being fed to it. Since the sequencer needs only a rising edge to operate, you should have no problem. In fact, on some systems, patching the taped click directly into the sequencer clock or step input will work fine.

Most envelopes require two inputs, however, to accomplish this, take the click back off the tape and patch into the pre-amp, then patch the pre-amp output to the gate and trigger of the ADSR (see figures 3 & 4). You could also try patching the pre-amp out into the trigger and the envelope follower into the gate input. Aries and Moog both make pre-amp-follower modules which put out the necessary voltages to control the ADSR. The Aries module has a gate and trigger output, and the Moog an S-trigger output. Some experimenting with the Aries system reveals that you have noticeably more control over the ADSR parameters by using the gate and trigger outputs rather than the pre-amp and envelope follower. To get stable gates and triggers requires careful adjustment of the pre-amp, envelope follower and threshold levels.

By using the pulse as a click and varying the pre-amp gain and envelope follower threshold you can get the envelopes to double trigger, that is fire on both the rise and fall of the pulse. Patch the click into the pre-amp, then patch the full wave rectifier signal into the threshold. What happens is that the full wave rectifier inverts the negative slope into a positive (see figure 5). By adjusting the gain you can bring the amplitude up enough to fire the ADSRs twice per pulse. You'll shortly discover that only certain envelope settings will work. If the attack rise time of the ADSR is slower than the train of incoming pulses, or the sustain and release time is too short, you will then get either none or intermittent envelopes.

When you have a workable click on tape, play it back a few times to double check that it fires everything correctly. Too high a recording level or drop out on the tape will result in the sequencer jumping around or dropping steps, making it impossible to sync up to previously recorded tracks.

Submixing and Bouncing

Submixing, or bouncing is the process of mixing a number of tracks down to one track. This is done to make room for additional overdubs or to simplify a complex mix. (You only have two hands and up to twenty-four or more faders on big boards.) Bear in mind especially on home decks, each generation brings a certain amount of signal degeneration.

Generally submixing is done in the sync mode; that is the tracks are moved to another location on tape exactly parallel to their original position.

Figure One: Score and Timing Reference.

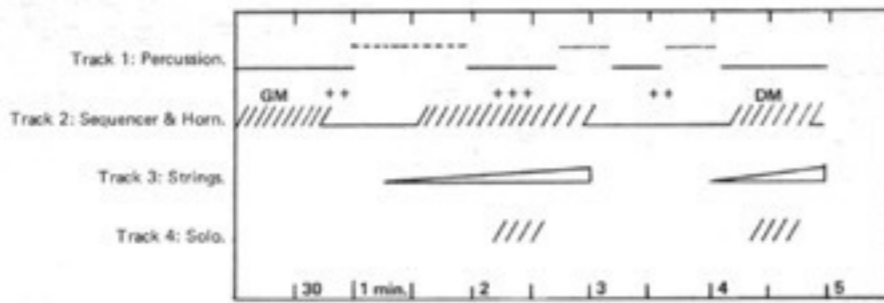


Figure Two: Acoustic Delay.

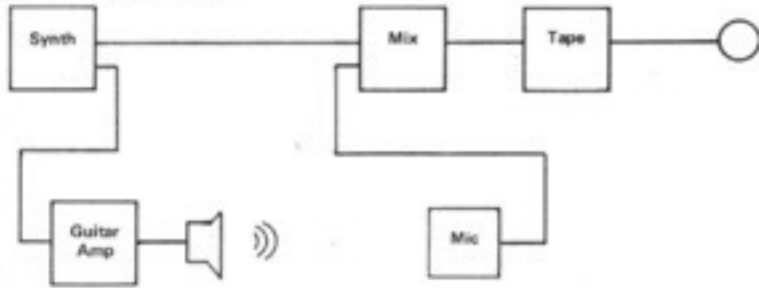


Figure Three: Click Tracks.

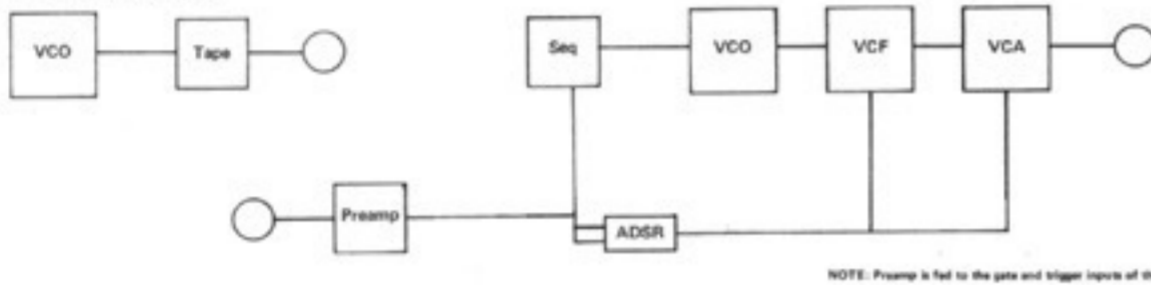


Figure Four: A typical patch using the click track from tape.

For diversification an LFO is patched into the gate input of the ADSR. S/H into the PWM input of VCO 2 results in that oscillator only playing some of the notes VCO 1 is playing.

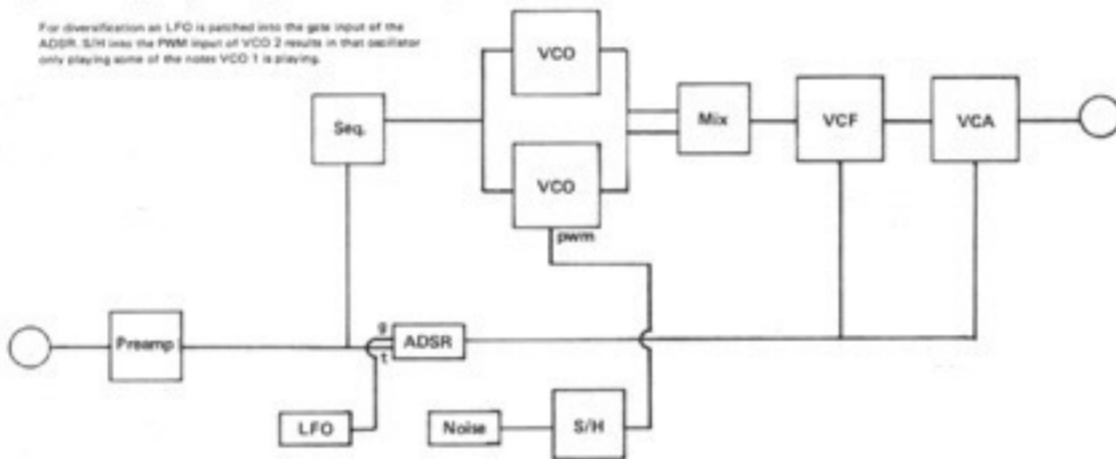


Figure Five: Waveforms.

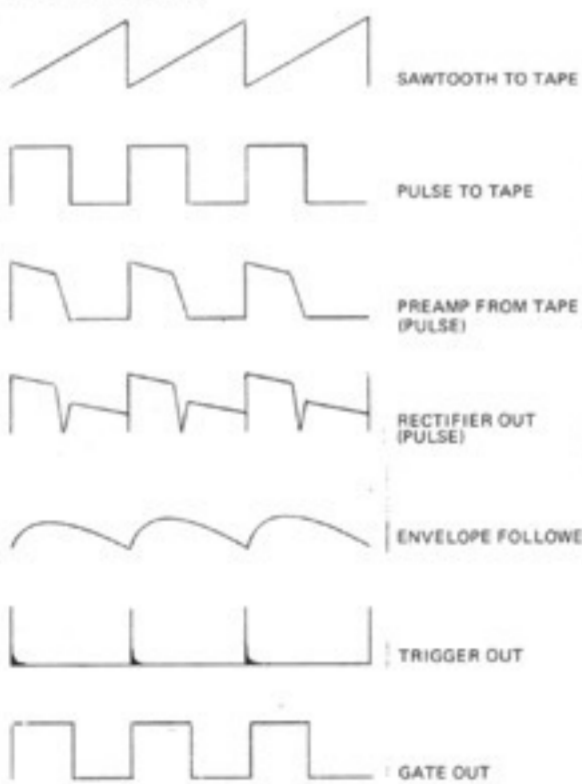


Figure Six: Submixing.

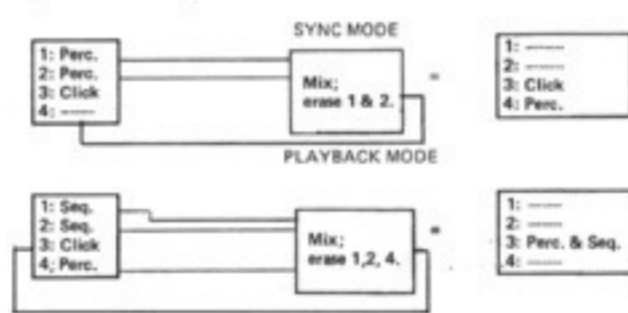


Figure Ten: Sequencer and Switches.

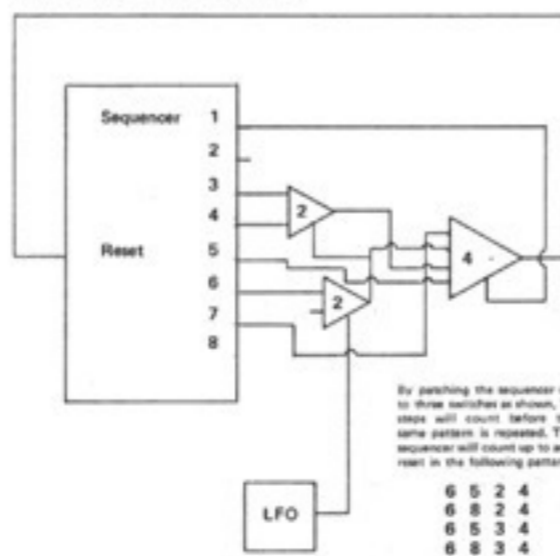


Figure Seven: Submixing to an adjacent track.

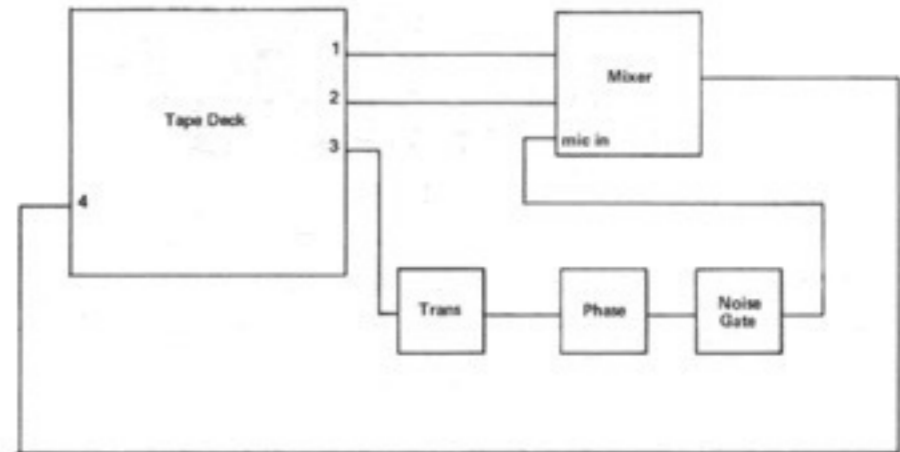


Figure Eight:

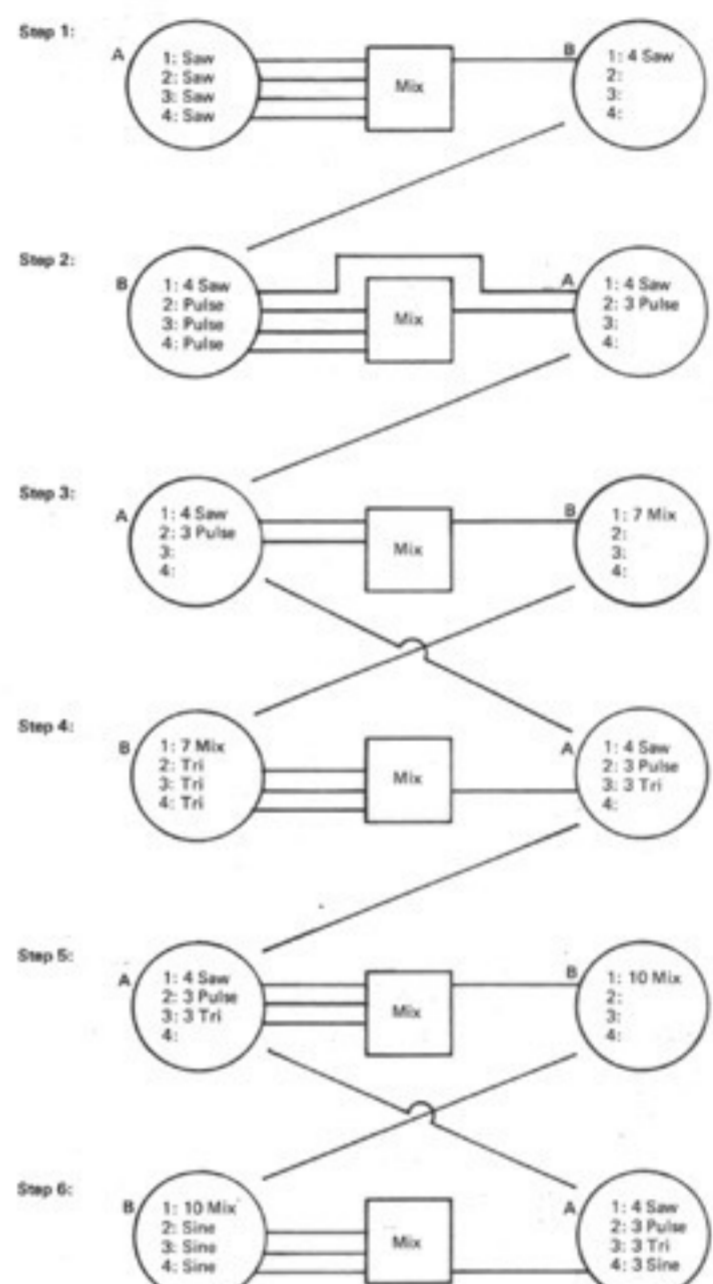
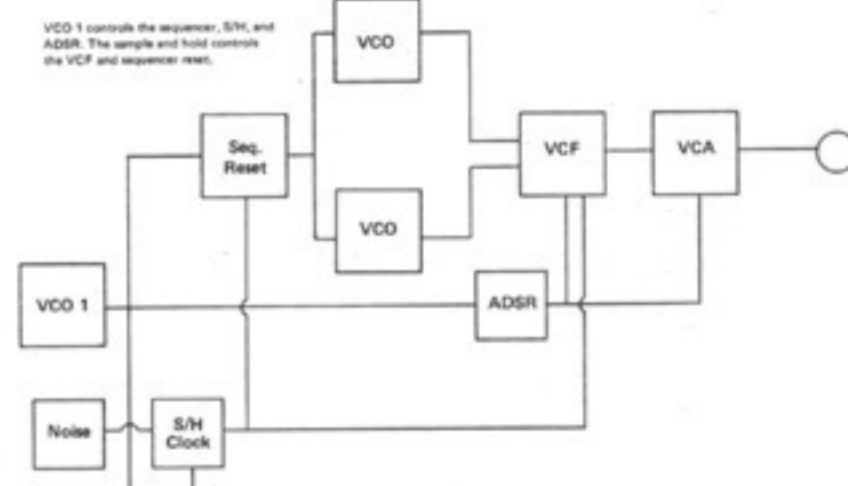


Figure Nine: Typical patch showing use of sequencer and S/H.



This is so that the submixed section will be in time with the unmixed tracks on the tape. To do this the record head temporarily acts as a playback head. You cannot bounce to an adjacent track (one exception, see Mixing in Sync Mode), otherwise you will get electronic feedback. This is apparent by pinned meters, and a very high frequency oscillation.

Since most of you are using four track machines, a way to get more mileage from your deck is to record three tracks, and then mix on to the fourth track using playback mode (not sync). You could also be adding a fourth part as you mix down. The playback head has a better frequency response and will not feedback when mixing on to an adjacent track. When you are satisfied with your submix, go back and erase the first three tracks for more overdubs. Again, refer to your owners manual. Generally the procedure is the same, but a few decks have peculiarities to them. Some decks (Tascam four tracks) have only two heads, erase and record/playback. If this is the case you can only submix in the sync mode.

Tracks which are full and cover a broad frequency range bounce well, because they tend to mask noise. Record your first tracks (ones that will be bounced once or more) brighter than usual. When you mix them down, reduce the high end by the same amount that you brightened it. This will bring the sound back to its proper perspective while also getting rid of some tape hiss.

When submixing, also keep faders down when no signal is present. If you invest in noise gates (or use VCAs with envelope followers), you'll discover they're great for tracks with intermittent signals. Record delicate and soft sounds last; they don't hold up as well as wide range sounds when bounced.

Submixing in the Sync Mode

If you need to submix and still retain your click for future reference (which is absolutely necessary in many cases), you must mix down using the sync mode. Begin by putting your click on track three, then fill tracks one and two. Now mix one and two to track four in the sync mode. This method after one submix, however, effectively gives you the capabilities of a two track. What you can do is lay down some percussion, submix, add sequences, then dump the click. Once you are through with the click you can submix in the playback mode (See figure 6).

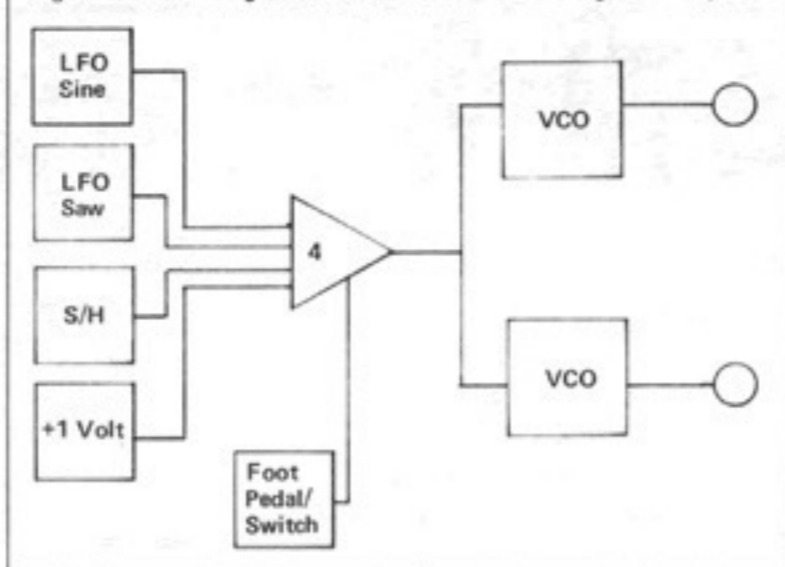
Occasionally you can submix to an adjacent track if you have a situation similar to the following example:

- Track 1: Kick/Snare
- Track 2: Bass
- Track 3: Occasional Perc./Hi Hat
- Track 4: Track To Mix On To

What you want to do is mix tracks one, two and three down to track four. Obviously tracks one and two will have no problem. Track three could be bounced if it is kept at a low enough volume or a noise gate is used. Electronic feedback is similar to acoustic feedback in some respects. There is a certain amount of leeway before a threshold is reached and the speakers begin to howl. Likewise with electronic feedback; although you don't hear any "build up", you will be able to transfer a certain amount of signal to an adjacent track before feedback occurs. Do this with caution or you could damage your meters, electronics or ears. Some experimenting here will reveal to you what you can and can't get away with (see figure 7).

If you're going for big productions; the syncing

Figure Eleven: Using the electronic switch as a voltage control preset.



of two decks up to each other can work if you exercise a lot of patience.

Use two decks, each with its own reel of tape. Fill reel A with four tracks, and mix down to track 1 of reel B. Fill the remaining three tracks on B and then mix down on to track 2 of reel A; at the same time, copy track 1 (which has 4 tracks) on to track 1 of reel A. Tape reel A will become your work master. Mix tape A, which now contains seven tracks, on to track one of tape B, which acts as a reference mix. Fill tape B with three more tracks and mix those back on to track three of tape A. Again mix tape A's ten tracks on to one track of tape B. Add three more tracks and mix this back on to tape A. You now have thirteen tracks on one reel of tape, with only four being more than two generations old.

Sounds impossible? It's not; the trick to doing the above is to put a series of reference points at the beginning of the tune. Mark the beginning of the two tapes with a grease pencil and then record a metronome with a voice countdown of ten seconds. Cue the two decks up and start them simultaneously. Synchronize them by applying a light amount of pressure on the faster of the two decks. It's best to use this procedure on tracks that are not super tight time wise; legato strings, voices, spaced solos, etc. Obviously the decks have to be fairly stable. Generally you can run decks two or three minutes without getting too far apart.

This is where the term "flanging" originates. You take two reels of tape with the same program material, play them simultaneously while recording on to a third deck. By rubbing the flange of one deck, numerous phase cancellations occur as the two tapes go in and out of sync. This is really a fun experiment to try. It is a more subtle and less artificial sound than the phasers and flanging devices currently available, but it does require three decks, and a good amount of patience and time.

Obviously this is not a high technology solution, and it is a lot of work, but it does allow you to get much more out of your system. After working on a few pieces you'll begin to get the feel of submixing and bouncing tracks. An ideal tool to have is a ten band graphic equalizer. It can help you to preserve the tonal spectrum of each track as you mix down. Be careful not to get too extreme with it. Overprocessed tracks might sound novel the first few listenings, but not so good the next day when it might be too late to remix.

Sequencers

Sequencers are perhaps the most fascinating of the synthesizer modules. Their capability for creating textures has enticed an untold number of musicians. Sequencers basically can be divided into two categories: analog and digital. Each manufacturer's parameters differ, but a typical analog sequencer might be 3x8; the first para-

meter being rows and the second being steps. Each row simultaneously produces output at its respective jack. By connecting a sequencer to an electronic switch you can achieve one 24 note sequence or one 8 and one 16 note sequence. Pots or sliders are used to set the voltages.

Digital sequencers also vary widely with manufacturer. They generally produce one output even though there may be several layers. A keyboard and/or calculator type entry pad is used to load voltages. Digital sequencers are faster to load and easier to tune than their analog counterparts. The chief disadvantage of digital sequencers is their volatile memory. (The stored voltages are lost when the power is removed.)

A number of sequencers have been developed which incorporate the features of both analog and digital. The ARP sequencer for instance has sliders but also a "quantizer" function which will effectively round the slider voltage to a discrete 1/12 chromatic scale voltage. Sequential Circuits advertises a sequencer which is digital with parameters of 16 by 16. You can only playback one layer at a time, but it contains a battery back up which allows you to unplug the unit and still retain the memory.

There are a number of ways to use sequencers besides controlling VCOs. Syncopated rhythms can be generated by patching the voltage output back into the clock. By controlling the filters and VCAs certain notes can be emphasized. The use of a S/H with a sequencer can give a lot of variety also. Use the same clock and try patching the S/H in different places (see figure 9).

The use of a set of electronic switches can increase the versatility of a sequencer greatly. The switches can increase the apparent length of a sequencer or add variation in the rhythmic or melodic content by resetting and stepping the clock. The switches can also let you make simple preset patches, such as changing the modulation source for VCOs (see figures 10 & 11).

An interesting technique is to record a sequence, rewind, and on another track record the same sequence with a different voice. Tune the VCOs down an octave or fifth, or fourth, change the filter and envelope settings. This will give a bigness to a sequence, by stressing it more. Even try it a third time, octaves above. You can gate or fade the signal before it reaches the tape, giving added emphasis. The main thing to remember when working with sequencers and synthesizers in general is to keep the harmonic quality moving.

When recording, I find it useful to lay down a melodic sequence first then go back and add percussion somewhat after the fact. It's a good procedure to lay in sections of percussion rather than a blanket all the way through a piece. The same for the melodic sequences too, they can become monotonous. Change filter settings, envelopes, octaves and even tempo as you lay down a track.

Sequencers can also be used without referencing to a click. If a faster and higher pitched sequence is layered in over a rhythmic bed, the mind tries to correlate it into a meaningful experience. Many a visual and audio track have been joined together and worked even though they were created by unrelated people for different projects.

One of the challenges of synthesizers is not just creating sounds, but groups of sounds and blending them into a meaningful and cohesive whole. The art of synthesizing, especially with modular systems, requires the composer to develop skills in a number of areas; music, electronics, logic, technique and patience. This knowledge and skill can benefit many other areas of your life besides synthesizing. ●

PERFORMANCE

Herbie Hancock Los Angeles

The Roxy stage was crammed full of electronic equipment when Herbie Hancock emerged, but he came out alone and proceeded to play a beautiful improvisation on the electric piano—very mellow and very sweet. Silently, bassist Paul Jackson and drummer Alphonse Mouzon picked up their respective instruments as Hancock played the opening strains of "Maiden Voyage", turning this legendary composition into an incredible demonstration of free electric jazz, including an extended solo by Mouzon. These guys were cookin' and I wondered, "How much more can they do?" After all, this was only the second tune and already they had cooked me into a frenzy.

Hancock brought out the rest of his band, (Webster Lewis, keyboards; Bill Summers, percussion; Benny Maupin, reeds; Ray Obiedo, guitar) and went into a fast 4/4 funk tune (one of several) that featured Hancock on clavinet, 8-voice Oberheim, Yamaha polyphonic CS 80, and Rhodes, interplaying with Lewis' B-3 and Maupin's electric clarinet. A nice tune, but Hancock looked rather silly wearing his headset microphone. What was it for? I found out on the next piece when he strapped on his lead synthesizer (was it a customized Minimoog?) and started singing.

In between the headset and the synthesizer Hancock uses a Sennheizer vocoder to make his voice (with which he says he "Can't sing worth a damn") come out with the pitches that he's playing on the synthesizer. He controls the attack and filtration with his voice, but the pitch with the synthesizer. This set-up requires him to use the synthesizer's pitch bend when he wants to bend his notes. This tune was called "We Got A Funky Situation", which it definitely was.

Now that Hancock had brought in the vocals, it was time for a slow gospel singalong, "Feels So Good, Don't Stop", which featured an extended guitar solo by Ray Obiedo. Herbie Hancock acknowledged Stevie Wonder's turning him on to the vocoder with "I Thought It Was You", a pleasant, flowing piece not unlike "My Cheri Amour". On this one Hancock plugged the vocoder through a Prophet and sang polyphonic duets with Webster Lewis and his Prophet-vocoder-headset ("pilot to co-pilot). These guys were light years ahead of "My Favorite Martian", but the stuff was wearing on me; especially when it got to be "Time To Sing The Blues", another duet between R2D2 and Darth Vader, with Mouzon, Maupin and Summers as The Lettermen in the corner.

By this time my heated enthusiasm had cooled down considerably, and I was grateful that the last tune of the set was an instrumental, "Chameleon". On this one Hancock played wah clavinet CS 80, and took one of his few solos of the set, on the strapped-on synthesizer.

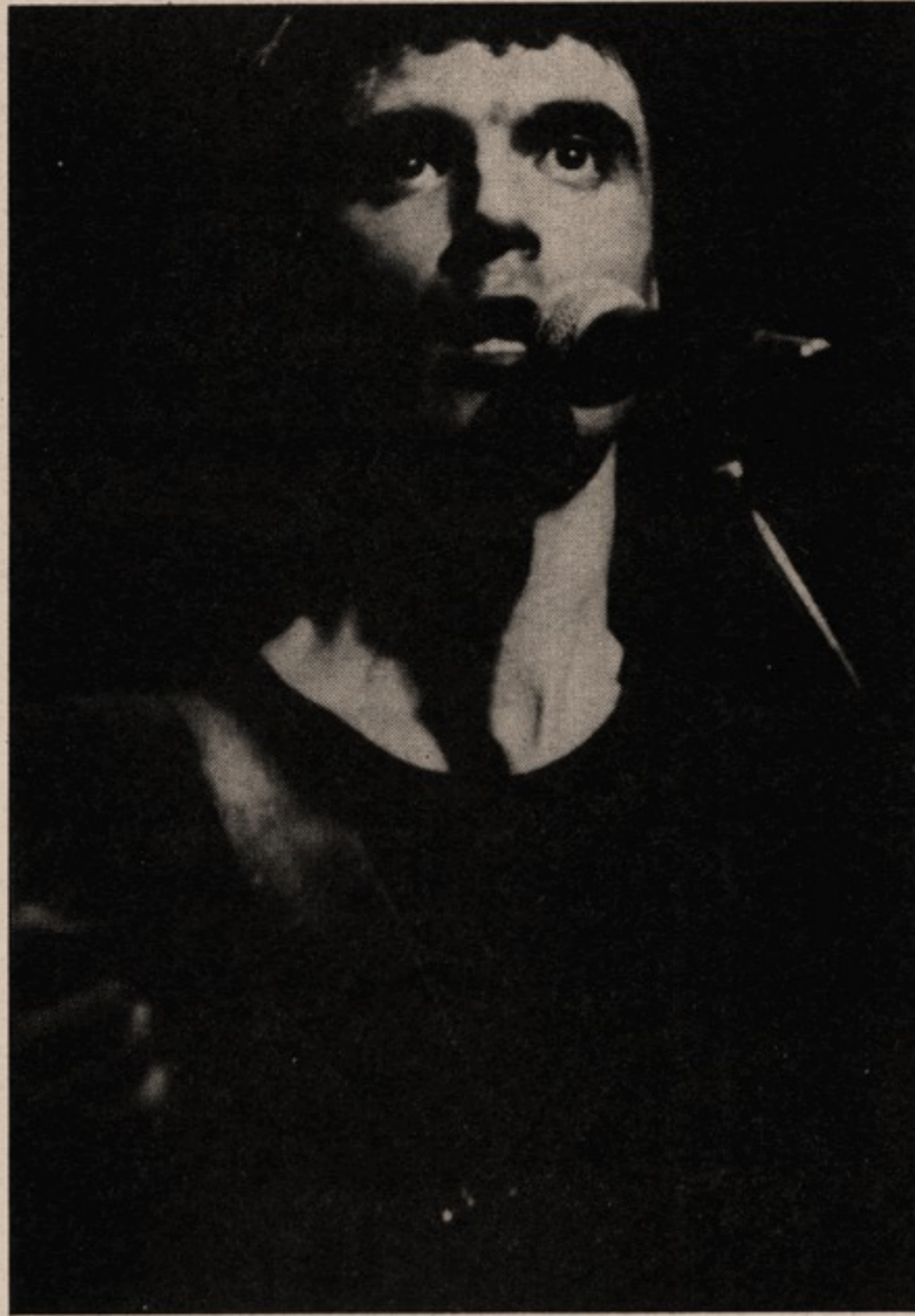


PHOTO: ARON RAPOPORT

David Byrne of Talking Heads.

When "Chameleon" was released in 1974 many critics cried, "Sellout", contrasting some of the progressive things before it, such as Crossings, and especially after it sold over half a million copies. But at least Hancock plays on it, something he did very little of at the Roxy.

—Danny Sofer

Talking Heads Los Angeles

The major problem facing any band playing the Roxy is the ingrained ennui of its audiences. Most of the clientele are Record Company employees whose musical malaise is such that a concert becomes an event to be seen or drink at rather than an aural experience. Thus Talking Heads' final concert in their five day stint in Los Angeles produced the usual non-committal response in terms of audience participation. By the last encore they were managing to wriggle in their seats, but whether this was due to excitement or an attack of the fidgets was hard to say.

This was in marked contrast to the free U.C.L.A. open-air concert two days earlier, where the students turned out in force and were very enthusiastic. Yet Talking Heads did

their best, and anywhere other than the Roxy would probably have brought the house down. Those doubting Thomases who were expecting a clinical, artsy set, were shocked to discover that in concert Talking Heads are a raw, exciting funk band.

Indeed, all their songs are clearly built around the rhythm section, who played unassumingly, but effectively all evening. Chris Frantz is of the Ringo Starr school of drumming; simple and effective, focusing totally on keeping the beat, while Tina Weymouth barely moves, her face a picture of intense concentration as she provides the bass patterns to Byrne's riff-dominated songs. Jerry Harrison plays rhythm guitar or keyboards, sometimes counterpointing, sometimes reinforcing David Byrne's lead.

However, the band is not very exciting visually, and Byrne only started to move around the stage towards the end; the rest of the time being content to nod his head in time with the beat, or raise his right eyebrow quizzically. There was no chit-chat between songs—just "Let's get on with it, the music is what counts" professionalism. The music itself was entertaining enough, and the 90 minute set was

well-paced, building to a driving conclusion.

The current tour highlights the new album, *More Songs About Buildings And Food*, and lacking Brian Eno, 24 track recorders, and sophisticated mixing, the songs are much rougher in concert, pared down to the essentials. It is a tribute to Byrne's songwriting that they stand up to a variety of treatments. The songs are clearly in a state of constant evolution, parts of the new album having been played over a period of years without being recorded until now, and Byrne is continually experimenting with his vocals. In fact it was the vocals which showed the most musical development. Byrne's voice is extremely pliable, ranging from glottic hiccupping to frenzied screaming, and carries much more authority live than on record. He constantly improvises, varying pitch and coloring to an extent that often-heard album tracks sound like new songs.

The opening number, "The Big Country", for example, now exhibits far more innate frustration. It was played much slower than on the album, almost pounded out, while Byrne alternated harsh and relaxed vocals over a spare rhythm. "Warning Sign" also was indicative of this, Byrne distorting his guitar, and then shouting manically into the microphone as if it were a bullhorn.

Jerry Harrison's Prophet synthesizer was used sparingly throughout, although very effectively on "Stay Hungry", providing a wash of Impressionistic sound over Byrne's funky guitar and Tina Weymouth's monotone bass. However, on "New Feeling, a song from Talking Heads '77, Byrne played synthesizer as a percussive instrument during an extended introduction of building rhythms, before switching to guitar and vocals. The synthesizer was dropped altogether from "Found a Job", which took on the form of a soap opera, with Byrne playing all the parts at first, then aided by Harrison on the choruses. The synthesizer duet fade out on the album was now played on guitars only, with Harrison taking a slightly slower, leading role to Byrne's rhythm.

The songs from the first album were particularly successful in their more evolved form. "Who Is It?" was chanted, grunted, and screamed before segueing into "With Our Love", pared down to a simple bass and Ringo-style drumming, beneath Byrne's stuttering vocal. "Psycho Killer" saw the audience actually coming to life, clapping along half-heartedly for a while to the opening bass motif. The song is now far more demented, with Byrne and Harrison screaming the "Yeah, Yeah, Yeahs" of the chorus with unrestrained abandon, as they built to an electrifying finish, trading guitar licks as if their lives depended on it.

At last the audience was awake, stomping for an encore, and they received two. "Take Me To The River" now sounds much more like a Talking Heads original than an Al Green composition. Each

band member came on stage in turn to take up the rhythm, Harrison this time playing a Yamaha organ, and Byrne's stronger voice really did the song justice. It was both powerful and idiosyncratic, drawing the audience in with its soulful qualities, but at the same time distancing them with strange contortions.

The band finished up with "Thank You For Sending Me An Angel", perhaps their most upbeat song, with Tina Weymouth taking over on keyboards and Byrne indulging himself in his wildest vocal gymnastics of the evening. The audience allowed themselves a few yells and whistles but one felt that Byrne was providing more vocal energy than the whole of the Roxy audience put together. It is disappointing that L.A.'s most comfortable club venue also happens to be its most sterile.

—Colin Gardner

Sunday Series Los Angeles

A unique concert series has begun in downtown Los Angeles and in this, the second concert of the series, electronic music was featured.

The concerts are co-ordinated by Pat Alt and John Steinmetz and held in the former's Downtown loft. Each concert is formatted to highlight a divergent area of musical repertoire and draws upon the talents of area musicians and composers. All who attend the Sunday afternoon events are asked to bring a pot luck dish for admission, and additional donations are accepted to further offset concert expenses. Needless to say, an incredible meal is enjoyed at the concert's end, and an opportunity for communication is afforded to the often isolated members of the local art community. Another motivation behind the concerts, and one that this writer wholly supports, is to bring creative activity to the Downtown area, a traditionally nine-to-five setting.

The first piece, *Untitled*, was composed and performed by Lee Kaplan and Nels Cline. Afterwards, Kaplan complained of keyboard problems, which would explain his minimal contribution as well as his head shaking (after all, this was not Indian music), but still, all was not lost. Cline made excellent use of a tenor recorder by way of multiphonics and combination tones arrived at through simultaneously playing and humming. Other interesting effects included playing the strings of a liberated portion of a piano sounding board through echo with what looked to be super ball mallets.

Second on the program was *Levels*, composed and performed by Steve Roach with a guest appearance by Bryce Robbley. The music was characterized by the development of a train of thought, or motive, (often associated directly with a synthesizer function) to the point that it would serve as part of the layering of the piece. In such a manner, Roach would move from instrument to instrument, and



PHOTO: BILL MATTHIAS

Jean-Luc Ponty.

back again, developing the piece on the macro level. A significant aspect of Roach's talent is illustrated by the constantly, but often slightly, moving parameters of his many instruments which did much to add to the interest.

Last on the concert was *Imaginary Mountains/homagetobarret*, by Scott Fraser. Utilizing one of the oldest Farfisa combo organs I've ever seen, Fraser manipulated two guitar pick ups around the back of the instrument, taking advantage of the poor shielding and the magnetic fields around the oscillators, to amplify pitch clusters of varying content. Cymbals, guitar and zither were also used to create this ultra-laid back, but entirely enjoyable work.

All in all it was a wonderful afternoon, and here's to there being many more. For more information contact: Sunday Series, 1324 South Figueroa, no.101, L.A., CA 90015.

—Doug Lynner

Jean-Luc Ponty Long Beach

Jean-Luc's performance at the Long Beach Terrace Theatre demonstrated the kind of cerebral power-rock approach which audiences have come to expect from fusion's top violinist. For those already familiar with this approach however, the evening offered few surprises. The material from his latest album, *Cosmic Messenger*, which constituted most of the set, differs little in concept from the previous LPs, and lacks the one or two cuts which Ponty has counted on in the past to put his albums over. The show was nonetheless compelling if only from the standpoint of the technical wizardry of the band.

Musically, Ponty seems to be moving increasingly towards the electronic. Of six players, only the drummer played an acoustic instrument. Instrumentation included

Jamie Glaser and Joaquin Lievano on guitars and Avatars, Alan Zevod on keyboards and synthesizers, Ralphe Armstrong on bass and effects, and Ponty himself who played *Odyssey* and used various effects on his violins. Most impressive was Ponty's compositional use of all these instruments for highlighting orchestration and bringing out melodic lines. Live performance of complex timbral music is always exciting, and this aspect of the evening went well.

Particularly moving was Ponty's "Duet for Violin and Two Digital Delay Units". While occasionally verging on the gimmicky, he created some ecstatic moments whose preciousness was heightened by their spontaneity: a unique blend of the technician and the artist. Alan Zevod approached this concept as well, being refreshingly a synthesist and not just a keyboard player. If he overstepped the boundaries of taste now and then, at least he was never static. Bassist Ralphe Armstrong was less successful with his electronic bass solos. As a bass player however, he helped provide the driving force underlying much of Ponty's music, together with the drumming dynamism of Casey Scheuerell.

Visually the show offered little other than some light changes, and the energy of the players on stage, which was plenty. Ponty wielded four different day-glo violins, one of them a five string.

High points of the show, besides Ponty's solo spot, came for the most part in the three encores where the band played some of their earlier hits. The audience responded well to Ponty throughout the evening though, and did not seem to mind the wandering nature of his new material. Whether they will continue to have such patience remains to be seen.

The Mark Almond band opened the show, providing a fairly bland

repertoire and luckluster performance. Solo spots by their sax player and their new guitarist, Carlos Rios, provided the most interesting parts of the set. Drums and percussion were effective.

—Melodie Bryant

Larry Austin New York City

Larry Austin returned to New York to perform his first NYC concert in nearly a decade. The concert, presented at the Kitchen on October 7th, was billed as "A Seventies Retrospective of Music and Intermedia". Combining electronic and acoustic sounds in a program of exquisite beauty, the music left the audience wishing Austin would return to the city more often.

The first piece of the evening, "Caritas", was digitally generated in 1970 at Stanford University. The density of the music made it difficult to distinguish the sounds from one another, although the overall timbral effect was expertly calculated and controlled. Instead of turning into another sensory overdose, as dense tape music often does, the piece maintained a restrained beauty throughout, foreshadowing much of the music that would follow.

"1976", the third piece of the night, is the composer's commemoration of the Bicentennial. Voices of different ages and accents recited the Declaration of Independence in a sort of canon form while an organ was heard playing Bach. This was the most "conceptual" piece of the evening, and, not coincidentally, the least interesting sonically. However, once a large number of voices had entered, a vague but unmistakable rhythmic feel began to emerge. The relationship between this rhythm and the Bach was quite stunning, and it was refreshing to hear a text-and-music composition in which the two elements were related in an interesting, original manner.

The second half began with "Catalogo Gesto/Timbra", a work specifically composed for the performers: Nancy Udow, dance; and Michael Udow, percussion. Each had a catalog of events he or she could execute, and instructions as to how the events were to be ordered. The instructions were such that the dancer took her cues from the musician and vice-versa. These sort of pieces always look good on paper but when realized generally lack both the tightness of a fully scored piece and the energy and flow of an improvisation. Happily, this performance had plenty of both. The Udows' familiarity with the material and sensitive execution made this piece one of the finest of the night.

Michael Udow's instrument itself is worth mentioning. It is a sort of modified xylophone, whereby many of the wooden blocks had been replaced by various kinds of pipes, wires, etc. Those that remained were not arranged from lowest to highest, and the effect was similar to that of a prepared piano, yet crisper due to the nature

of the hard xylophone mallets as opposed to the softer hammers of a piano.

"Second Fantasy on Ives' Universe Symphony... the Heavens" concluded the concert. Featuring John Moses on clarinet, Arthur Lewis on Viola, Barbro Dahlman on keyboards, Michael Udow on percussion, and a tape of flutes, percussion, and computer generated sounds, this finale was really the showcase for Austin's abilities as a composer. As with all the music of the concert, the final work was characterized by beautiful sonorities, attention to detail, exquisite blend of electronic and acoustic sounds, lack of pretension, and superb execution.

It was a joy to hear someone making beautiful electronic music without resorting to drones, overly-simple harmonic structures, or any of the other cliches currently so popular among electronic music composers. Instead, Austin chose a more difficult compositional path and demonstrated the skills necessary to walk it without a slip.

—Bob Ostertag

Stuart Dempster

Cleveland

On November 7, at the Cleveland Institute of Music, one of the world's foremost proponents of contemporary music performance, Stewart Dempster, presented a lecture-recital consisting entirely of compositions commissioned by himself, including his own composition, *Standing Waves*.

This piece is based conceptually on a 48 second computer-generated reverberation time, inspired by lengthy acoustic reverberation times encountered by Dempster when performing in several European cathedrals. He composed the work in 1978 under the auspices of a composer's grant awarded by the National Endowment for the Arts, employing live, amplified trombone mixed in equal proportion with four tracks of drone-like inversion; recorded in an essentially twin track mono configuration for the front and rear speaker pairs respectively. Dempster's live performance with the tape (which was realized at the Stanford Computer Center) resulted in the creation of various combination tones and harmonic spectra which produced a unified, though simple, textural complex of sound. Especially fascinating were the varieties of timbral components present as a result of Dempster's multi-varied tone, sometimes induced via a highly refined multiphonic technique employing manipulation of the oral cavity as a sound processor. The work slowly and delicately unfolded, with the gradual emergence of the live trombone from the tape, developing into a very deliberate, chant-like line, played most effectively with a "nasal" trombone sound. Dempster's capacity to produce an incredible palette of trombone sounds is simply unmatched in my experience.

The compositional aesthetic inherent in *Standing Waves* is similar in concept to so-called pulse music,

a minimalist, semi-static expression, ranging approximately 20 minutes in this effective work, which succeeds in creating an aura of timeless suspension.

Donald Erb's "...and then toward the end...", for live trombone and stereo tape, is a structured, developmental work in which the solo instrument plays with and against four tracks of pre-recorded, performer-realized, Moog-processed trombone sounds. The work was composed in 1971 and explores the entire gamut of trombone timbral possibilities, again remarkably executed by Dempster.

The electronic tape, realized by Dempster and Erb at the Cleveland Institute of Music Electronic Music Studio, consists primarily of "classical" tape manipulation techniques (speed transposition, etc.) and voltage controlled low pass filtering, occasionally employing filter feedback regeneration for the production of sideband frequencies. Erb performed these alterations in real time in the realization of the tape, as Dempster overdubbed the four tape tracks. This highly interactive relationship between composer and performer assists immeasurably in propelling the formal motion of the work forward. Several musically dramatic gestures, including a highly effective passage in which long, ascending, recorded trombone glissandi and their heterodyning sidebands (coupled with a corresponding rise in dynamic intensity), precede a live mouthpiece glissando, effectively articulate a well-constructed form.

Dempster performed Berio's *Sequenza V*, and Robert Erickson's outrageously effective, *General Speech*, neither of which employs electronics. Both of these works amply demonstrated Dempster's gift for theater and superb multiphonic technique. —David Felder

Moebius

Los Angeles

On January 27, Moebius played a concert of electronic music at the Century City Playhouse in Los Angeles. The show was characterized by the use of various synthesizers, sequencers, and electronic percussion; but possibly the most unusual aspect of this performance was the scope of material which it offered.

"Language", a piece of taped conversation which opened the show, was representative of the more avant garde element, as was "Cloud Motion", the ethereal instrumental which followed it. "Cyborgs" and "Mirror of Infinity" showed the pop influence of groups such as Kraftwerk, while "Robots in Heat" (off the LEM album) brought to mind the mechanized mania of DEVO, Bryce Robbley's tortured vocals on "Light My Fire" (the Doors tune), combined with a twisted bass line, further emphasized the new wave element. Other compositions such as "Moebius", and "Urth" encompassed many of these influences. All of the material was strong however, and although it was diverse, it remained accessible.

The synthesists were: Douglas Lynner, Bryce Robbley, Steve Roach, and Bob Ramey on electronic percussion.

Visually, the show was a bit disappointing, mostly due to the nature of the instruments used. It was impossible to see what or how any of the players were playing. Ringed with synthesizers of all kinds, their mobility was minimal, and the visibility of their hands for the most part nil. This is a problem many synthesists face, and a group such as this multiplies the problem four-fold. Mirrors placed in back of the performers might add a little visual interest, or perhaps the occasional use of more mobile acoustic instruments. This would also provide a nice timbral contrast to all the electronic sounds.

Least effective was the use of electronic percussion. This can have its advantages: the sample and hold effect on "Robots in Heat" for example was a good application, and in fact, wherever percussion sounds were used, they were interesting and engaging. However, as the driving force for the rhythm section, the use of electronic percussion was lacking, and did little to enhance the music. On pieces whose main rhythmic impetus stemmed from the sequencer, the drums merely accompanied. This was especially true on "Moebius", where additional rhythmic punctuation would have added much to the power of the song. In contrast, the rhythmic accompaniment on "Mirror of Infinity" did more to obscure the bass line than to clarify it.

The competence of all the synthesists was evident, and except for some opening night jitters, they kept their equipment well under control. What was missing was the occasional spark during some of the solo sections. This was mostly noticeable in the more popular tunes, where an innovative energetic solo might have served to lighten up the effect of the ever pounding sequencer, inasmuch as percussion provided little in the way of diversion here. There was of course plenty of innovation in other areas, Douglas Lynner's "Talking Serge" being perhaps the most curious.

A few things still need to be ironed out. Sometimes voicings were unnecessarily doubled, and it seemed better use might have been made of personnel and equipment. This again was evident in "Mirror of Infinity", which was in addition too long. A balance in overall sound is also needed: the bass line which provides the underlying insanity to "Light My Fire" was barely distinguishable.

Nevertheless, the show was enjoyable and entertaining. The order of compositions, and the segues linking them lent a satisfying sense of totality to the performance and to the listener. This was perhaps not completely intentional. The final piece, "Moebius", was an uptempo composition, but a rebellious synthesizer brought the band members back on stage for a session of hypnotic improvisation, concluding the evening as peacefully as

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it had begun. A fitting, if unplanned ending for the set.

—Melodie Bryant

Joan La Barbara Century City

It is hard sometimes to be sure whether Ms. La Barbara is a performer or a scientist, but I can say without doubt that she is the most amazing singer I have ever heard. Pieces like "Space Testing", and "One Note Internal Resonance Investigation" bring out the scientist in La Barbara as she puts the acoustic properties of the performance space, and later those of her body, through their paces. It's almost like an Exploratorium road show.

All of La Barbara's music is demanding in performance, but from where I sat, "Circular Song" must have been the most demanding of all. Alternately rising and falling siren-like tones were broken only by the moment between in-hale and exhale, resulting in what is for all practical purposes, continual sound. I for one found my own breathing being controlled by hers, and when she increased the periodicity of her breathing to sub-divide the sliding tones, my breathing changed in step. Needless to say, when she introduced multiphonics (multiple simultaneous tones) in the center of the song, I nearly suffocated. Joan La Barbara the performer I presume.

Up until recently, one had to go to New York City to hear Ms. La Barbara, but now that she lives here there should be many opportunities. Catch her before the smog does her vocal chords.

—Doug Lynner

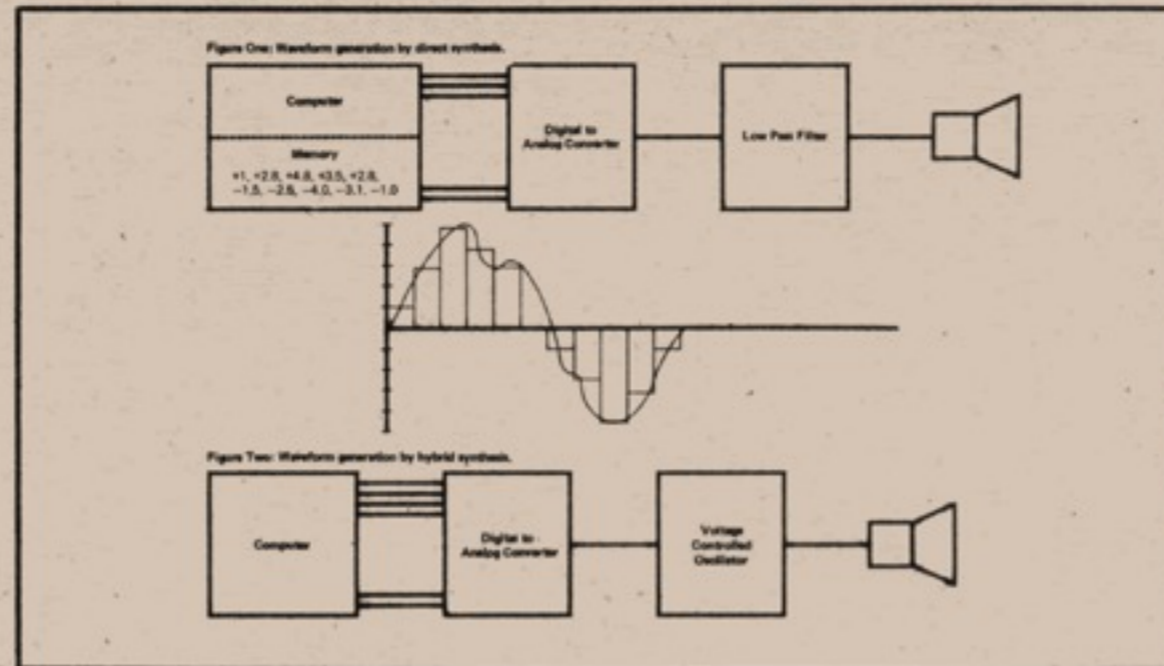
COMPUTERS

Languages/Systems

Both computers and computer languages generally are configured for a specific type of application. With computer languages this is born out by the large number of co-existing languages. APL, PL-1, PASCAL, FORTRAN, BASIC and COBAL are some of the more popular ones. For instance BASIC is a scientific language primarily for mathematical computation. Its chief attribute is that it is very easy to learn and use. Fortran (FORmula TRANslation) is more powerful in its menu of functions but is trickier to program because its format is much more specific than BASIC. APL is an extremely powerful language which can do the equivalent of a thirty line FORTRAN program in just one line. However it is very complex to understand. COBAL is a wordy English-like language primarily for business mathematics such as accounting and finance.

When examining these existing languages for their adaptability to music performance one finds they are not entirely suitable. New languages which have been written for this purpose are SCORE, MUSIC and GROOVE. Each of these languages is based around a program to instruct the computer how to interpret its set of commands. Some of these programs are written in FORTRAN with others written in assembly language or some combination of the two. For instance the language MUSIC is interpreted by the computer through the MUSIC program. This program is written in part in the language FORTRAN. FORTRAN in turn is translated by a FORTRAN compiler to machine language, which the computer then executes. (Compilers are explained in the last issue). The reason for this long chain of programs is that FORTRAN is much easier to write in than machine language, and it is also machine independent, which means that it doesn't care what type of computer it is run on.

Before looking at specific computer music languages, let's spend some time on some of the attributes and constraints that are placed on a computer language by the system it is used in. The first consideration will be time. Time will be used in two ways to partition languages. First with respect to



ILLUSTRATIONS: COLIN GARDNER

how fast a computer can do individual operations (computer speed), and next the length of time one must wait until the computer elicits a response to a program or program command (compiled vs Real Time). Computer operating speed segments the type of system being programmed into two classes. One is the direct synthesis system and the other is the hybrid system. A direct synthesis system actually calculates or stores the shape of the waveform to be played. The information is stored or computed in digital format, then put through a D/A converter, which outputs an analog equivalent through a low pass filter for smoothing to the output. (See figure one.) From all of the preceding articles on D/A converters we know that the sampling and therefore the output rate of an analog signal must be at least twice the frequency of the signal being sampled or outputted. The highest fundamental frequency of a musical instrument is around 4,000 Hz, so the output frequency must be at least 8,000Hz. The combination of the computer program and the computer it is running on must be fast enough to achieve that output rate. Computer languages which allow computer generation of complex waveforms, which implies detailed harmonic content complete with attack and decay amplitude information, require very large and very fast computers.

A less demanding computer system is the hybrid system. This system uses the same D/A converter but now generates slower D.C. control voltages, which then are connected to a voltage controlled oscillator, amplifier and filter as in an analog synthesizer. (See figure two.) This system works on a note basis whereas the direct synthesis system works on a waveform basis. The ratio of speed between the two systems varies depending on the frequency of the note being played. However it is safe to say that the hybrid systems computer runs at least ten times slower than the direct synthesis system.

The second aspect of time revolves around a real time vs. compiled language. The definition of real time is time as it is actually going by. By contrast an example of non-real time would be the clock at a sporting event which may take forty minutes to go fifteen minutes because of all the timeouts. It is not a one to one correspondence with the actual passage of time. A real time language allows operations to be performed and interaction between the computer and the performer while the composition is being performed. A real time language can be compared to the new twenty four hour bank check cashing machines. The machine will ask you questions to determine what operations you wish to perform. The questions will vary depending on the answers you give. This is the interactive mode. Finally it will do operations for you such as dispense money or transfer it. This is the command mode. A real time computer music language would have a command set for interacting with the computer as a piece was being played.

A compiler system is one in which all of the information (eg. what to play and how to play it) is first fed into the computer. Then the music program is run to digest the information and do the necessary operations. At the end of the compilation period the computer is ready to perform. The compilation period may take several minutes and does not necessarily do any of the operation during the compiling time in real time. Note that in a compiled system there is no interaction with a composer during the play period— all of the information has been entered and cannot be modified. Also there is a long period in between when the parameters are specified and they are performed.

Whichever of the various forms the computer system and the language takes dictates what parameters and operation can be specified. It can take all the time it needs to digest the information

during the non-real time compile period and digitize the waveform, instead of relying on an analog synthesizer under its control to do so. The real time hybrid system allows the least computer control because the real time nature of the system does not allow time for complex operations. Also the computer does not usually have complete control over all the elements of the analog synthesizer it is connected to. For instance, it may only issue a trigger to the envelope generator and rely on the operator to set the attack and decay times by hand.

Now that we have a computer ready and waiting to accept an input, the problem is what to specify and how to specify it. The first thing to specify in the composition of each voice is its frequency and harmonic content. On a direct synthesis system, where the waveform is directly generated by the computer, the waves are formed by additive synthesis. Additive synthesis is adding together the correct number of sine waves with the right amplitude, frequency and phase relationship to produce a complex wave. In the hybrid system it is done with subtractive synthesis. First a VCO generates a waveform which contains the harmonics desired (a square or sawtooth wave), and then passes it on to a filter which filters out the unwanted harmonics and hopefully arranges the remaining ones into the proper amplitude relationship.

Next is the amplitude of the voice, including its attack and decay. In the direct synthesis method the amplitude characteristics are taken care of with mathematical multiplication and division of the signal internally. In the hybrid synthesizer it is done by passing the output of the VCO through a VCA.

In addition to what parameters to specify, there is a problem of how to specify them. The frequency is a relatively easy one to think about in tonal music— just give the note name (A sharp, B)— but what about the frequencies between two half tones? Amplitude is even more difficult. Should it be expressed in db, which although it approximates our ears, logarithmic response is difficult to get a feel for quantitatively. Table One shows the mathematical and musical notation for corresponding parameters. Note how they evoke a different set of units.

The purpose of this article was to explore some of the different combinations of computer and computer language setups, as well as some of the pitfalls of parameter specification. It is evident that there will be no "best" language for the performance of music. In the next issues we will explore some of the strengths and weaknesses of existing languages. —Peter Hillen

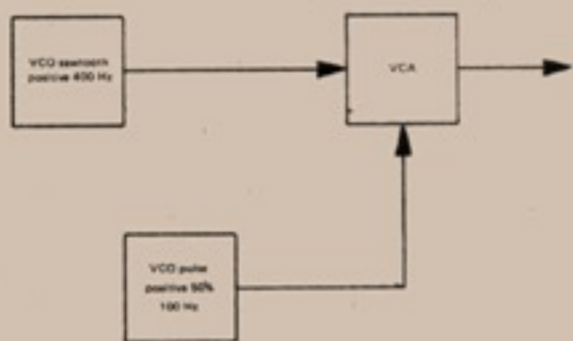
scientific	musical
Frequency	Pitch
Harmonic Spectrum	Timbre
Amplitude (db)	Loudness
Rise	Attack
Steady State	Sustain
Fall	Decay
Frequency Modulation	Vibrato
Amplitude Modulation	Tremolo
Sweep	Portamento

Table One:
Scientific vs. musical notation.

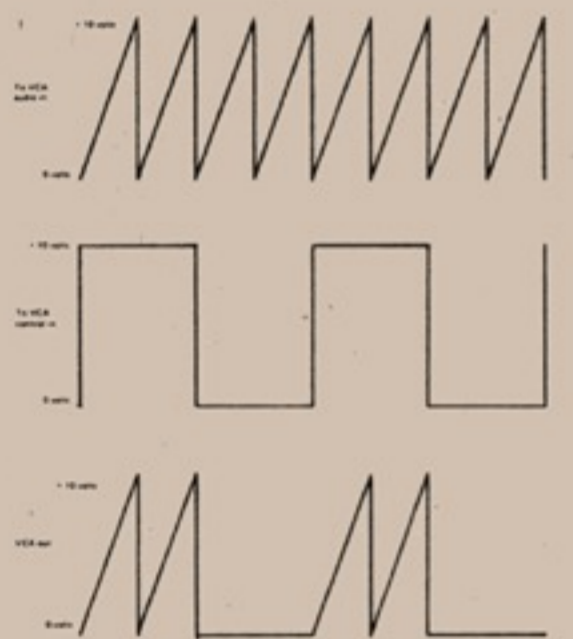
SYNTHESIS

VCA Basics

The voltage controlled amplifier, VCA, is a module which enables the instantaneous amplitude of one signal to control the instantaneous amplitude of another signal. The VCA, then, has at least two inputs; typically one is labeled "audio" and the other is labeled "control." As we shall see later, there is only a slight difference between the two inputs. In the following patch, the signal connected to the audio input is a +10 volt un-balanced sawtooth (a sawtooth that varies between 0 volts and +10 volts). The signal connected to the control input is a +10 volt un-balanced 50% pulse. The pulse oscillates at 1/4th the frequency of the sawtooth.



The way to understand what a particular module does is to understand its output. The following three signals are the sawtooth, the pulse and the VCA's output.



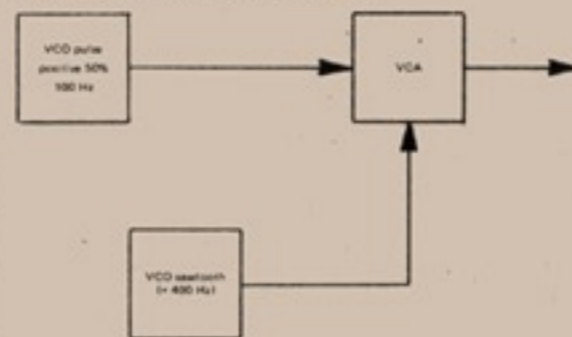
It is obvious that when the pulse is high, the VCA outputs the sawtooth and when the pulse is low that there is no output from the VCA. This can be expressed in an equation which is applicable for almost all synthesizer VCAs.

$$V_{out} = V_{in} \times GF$$

V_{out} is the amplitude of the VCA voltage output; V_{in} is the amplitude of the audio input voltage and GF is the gain factor. With most VCAs the gain factor is determined by dividing the control voltage amplitude by 10. In the above example, the +10 volt pulse divided by 10 results in a gain factor of 1. This is called "unity gain" and, as you can see by the equation, at the unity gain the input amplitude equals the output amplitude. Most synthesizers have a maximum gain factor of 1, indicating that the VCA output voltage can not exceed the audio input voltage. The notable exception is the Moog 902 VCA which has a gain

factor of 2 and which contributes to the characteristic Moog sound.

Going back to the example patch, connect the pulse to the audio input and the sawtooth to the control input. Here's the patch.

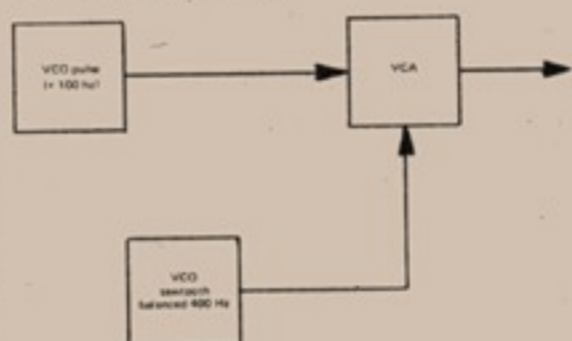


In the previous patch when the pulse was low the gain factor (GF) was 0, resulting in 0 volts output. In this patch when the pulse is low the voltage in (V_{in}) is 0 volts, again resulting in 0 volts output. There is no difference in the output of these two patches.

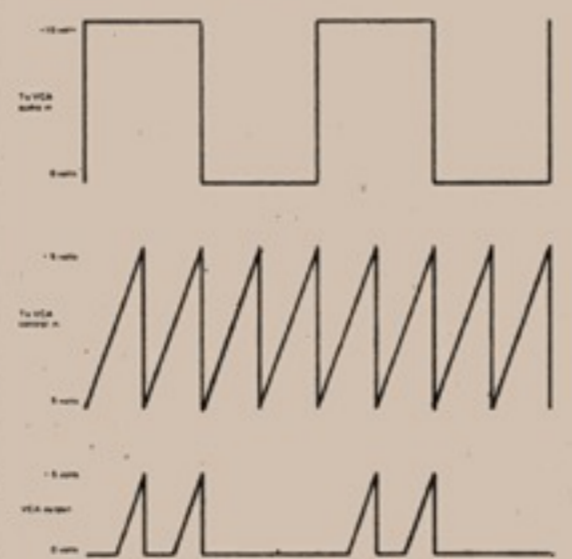
Voltage controlled amplifiers are also called two quadrant multipliers. The quadrants refer to the polarity (positive or negative voltage values) of the audio and control signals. With 2 signals there are four possible combinations of polarity—the audio and control can both be positive; the audio positive and the control negative; the audio negative and the control positive; and the audio and the control can both be negative.

By its nature, the VCA does not respond to negative control voltages; the VCA can only produce an output when the control voltage is positive. Of course, if the control voltage is positive and the audio input is 0 volts, there is no output.

In the following patch, assume we have a 10 volt balanced sawtooth as the control and a +10 un-balanced pulse as the audio.

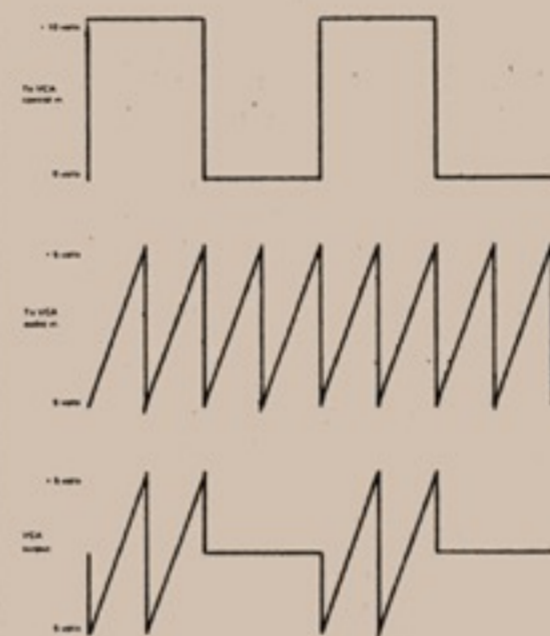


Here are the waveforms.



Again, it is obvious that when the sawtooth is negative there is no

output from the VCA. Now if we were to patch the balanced sawtooth into the audio input and the positive pulse into the control input the output would change. Here, again, are the waveforms.



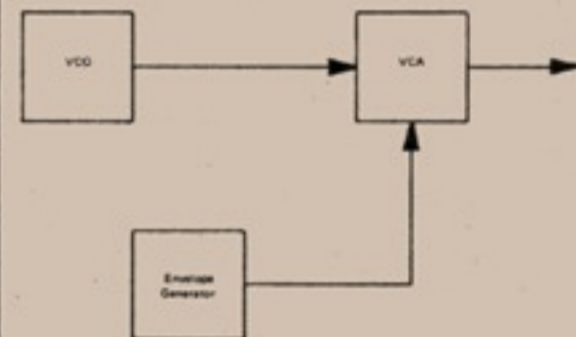
Many manufacturers offer additional features built within the VCA module. It is important to understand that none of these "extras" (initial gain control, multiple control and audio inputs, linear or exponential modes) change the way the VCA itself operates. These simply modify instead the signals that the VCA multiplies together. If a VCA has 2 or more audio inputs, this indicates that there is a small mixer inside the module which sums the 2 audio signals together before routing them to the VCA itself. Likewise, if there are 2 or more control inputs, this indicates that there is another small mixer just for the control signals. The output of this mixer is internally patched into the control input of the actual VCA. The initial gain is a positive DC voltage, which is internally hardwired into the control input mixer; the initial gain control itself is simply an attenuator controlling the amplitude of this DC voltage. All control voltages are added to the initial gain and then multiplied with the audio signal.

Finally, many VCAs have an exponential converter which can be switched in or out of the control voltage path. As its name implies, the exponential converter takes voltages which change linearly and modifies them so that they change exponentially. The exponentially converted waveform is then internally patched to the VCA control input. When using the VCA in the exponential mode, it is more convenient to consider its output in decibels rather than in volts. Many unity gain VCAs have a dynamic range of 100 db; 0 db is unity gain and thus the minimum VCA output is -100 db. In the exponential

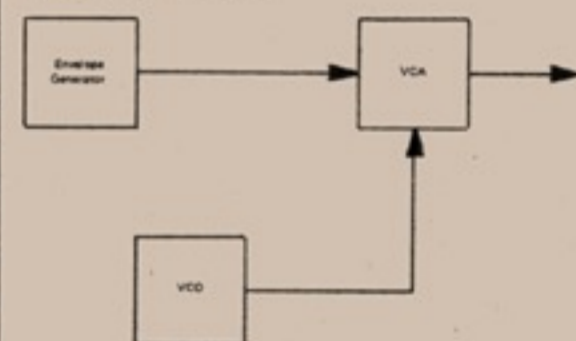
mode when the VCA output is measured in db, the VCA output changes 10 db per control volt. With 1 volt control the VCA output is -90 db relative to the audio input; with 2 volts control the output is -80 db relative to the audio input. With a 10 volt control signal (unity gain) the output equals the audio input and there is 0 db difference them.

Some smaller performance oriented synthesizers have no indication that they have VCAs in them, however all of them do. In the Minimoog for example, there are 2 VCAs, one is controlled by voltage at the external control input and the other is controlled only by the envelope generator labeled "loudness contour." The Micromoog and the Oberheim expander modules also have internal VCAs. These too are controlled by envelope generators and also by a switch which allows the user to "Bypass" the VCA entirely.

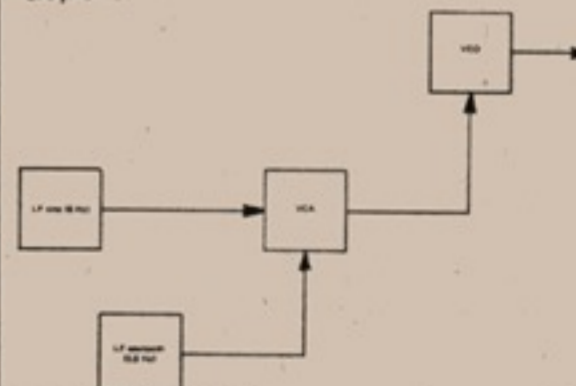
So far we've used only periodic signals (waveforms) to control the VCA. A common patch is to use an envelope generator for this purpose. Here's the diagram.



It would be no surprise that if the VCO's waveform is positive, that patch and this next one produce the same output.



VCAs can be used to control the amplitude of control voltages to achieve, for example, varying vibrato depth.



Finally, VCAs can produce amplitude modulation timbres. In order to understand how that works, however, it is more convenient to look at the VCA's output in the frequency domain rather than in the time domain, and that's something that we're going to postpone for a while. —Kenneth Perrin

TECH NOTES

Texas Instruments SN 76477

Electronic music functions are generally not difficult to integrate on a single chip; witness parts like the 3080, basically a VCA on a chip, and the 566 and 8038ICs, which are multi-waveform oscillators on a chip. However, electronic music does not represent a very significant slice of the total semiconductor market, so manufacturers have been hesitant to invest in ICs specifically designed for electronic music. An exception is the Solid State Music series of electronic music ICs, but since these are not produced in the vast quantities characteristic of semiconductor houses, they are essentially custom chips and carry a custom price tag.

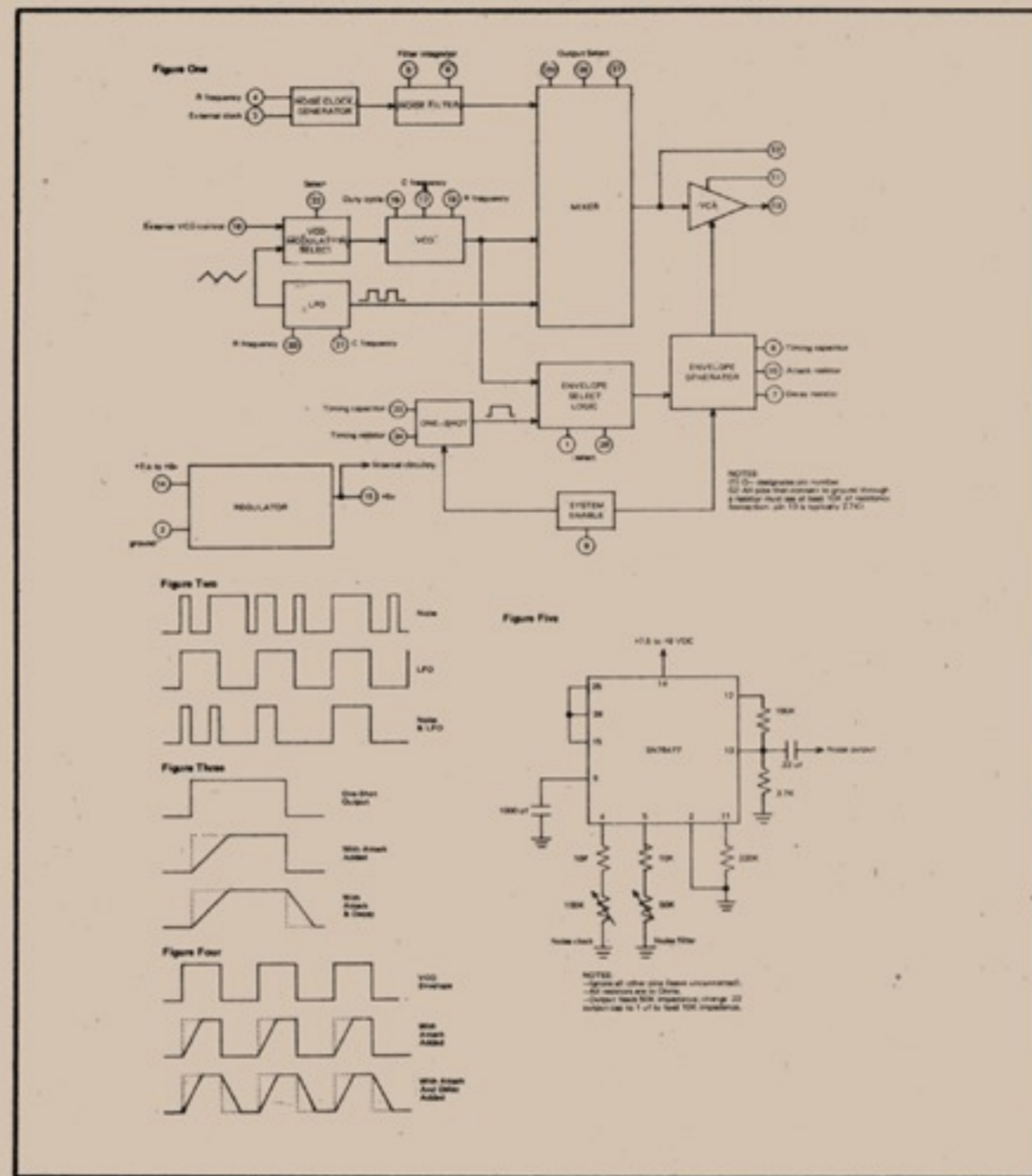
While the SN76477 is not exactly an electronic music IC (it was designed to produce sound effects in video games and other mass market items), there are several features of great interest to electronic music experimenters. The SN76477 is a 28 pin IC, and may be thought of as a bunch of sound generating blocks integrated into a single package. These blocks are: Square wave VCO with voltage control input and variable duty cycle output; Square (and triangle wave) LFO, may also be used for audio frequencies; Shift register type white noise generator; Envelope generator with attack/sustain/decay/ functions; VCA and output stage; On-chip voltage regulator; Switched mixer.

Before going any further, I'd like to emphasize that this is a digital, on/off type of part. The oscillators basically produce square wave outputs; the white noise output is a bunch of pulses with randomly varying width and frequency; and the mixer is not an analog mixer, but rather a mixer that can switch in various combinations of outputs. Nonetheless, there are ways to get around these limitations... and even if there weren't, the chip still presents a variety of useful functions.

Economically speaking, the SN76477 is not all that costly- around \$2 to \$4, depending on where and how you buy it. This means that even if you don't need all the functions available on the chip, you can afford to use just one function- say, the white noise generator- and just ignore the chip's other capabilities.

Figure 1 shows an overall diagram of the IC's innards. There are three audio signal sources capable of being passed through the mixer to the output: noise(s) appears at the mixer output. These pins respond to logic levels; ground them for 0 or low level logic, tie to pin 15 (the regulated +5V output that powers the system) for a 1 or high logic level. The chart below specifies which signals appear at the mixer output...

Pin 25	Pin 26	Pin 27	Output
0	0	0	VCO
0	1	0	LFO
1	0	0	Noise
1	1	0	VCO + noise
0	0	1	LFO + noise
0	1	1	VCO + LFO + noise
1	0	1	LFO + VCO
1	1	1	Inhibit (no output)



However, since this is a digital mixer remember that adding two signals together is equivalent to ANDing them logically. For example, if the LFO and noise are selected together, the noise will be turned on and off according to the frequency of the LFO (see Figure 2).

Ignoring the envelope generating circuitry for the time being, the mixer passes signals to an output amp (VCA). The output of this amp is an emitter follower stage, so pin 13 must connect to ground through a resistor (I generally use 2.7K). The feedback resistor sets gain; 100K in conjunction with the 2.7K resistor at pin 13 gives an output of about 2.8V peak-to-peak (i.e., 0 VU). A resistor from pin 11 to ground sets the overall amplitude capability of the output; I use about 220K. Too low a resistance can saturate the amp, but too high a value leads to a reduction in output. You might want to experiment with different values to obtain different types of effects.

Now let's consider the various signal generators. The noise clock needs a timing resistor from pin 4 to ground to set the frequency of the clock; a minimum value of 10K gives a high clock speed, while raising this resistance lowers the clock speed. Because the on-chip clock is limited in its range, you may disable it by connecting pin 4 to pin 15 (a high logic level) and feeding an external +5V clock to pin 3. By clocking at a very slow speed, for example, you may obtain very slow noise patterns which are

similar to a random control voltage.

The noise filter requires a capacitor from pin 6 to ground, and a resistor from pin 5 to ground. These two components act as an integrator to alter the high frequency content of the noise generator, or "smooth out" the output waveform if you're using a low frequency clock. Tapping off the filter capacitor with a buffer stage gives yet another type of white noise/control voltage.

The VCO's basic frequency is set with a capacitor from pin 17 to ground and a resistor from pin 18 to ground. The duty cycle control pin, when connected to 2.5V or greater, gives a 50% square wave; when connected to 1V or less, the duty cycle drops to about 18%. Voltages in between 1V and 2.5V vary the duty cycle between 18% and 50%.

The frequency of the VCO is further controlled by the VCO modulation select, which may be thought of as a logic-controlled switch. With pin 22 at a low logic level, the frequency of the VCO depends on an external voltage present at pin 16. With pin 22 high, the VCO frequency is modulated by a triangle wave generated by the LFO (good for sirens, bird chirps, and the like).

The LFO is a similarly designed oscillator, with a resistor from pin 20 to ground and a capacitor from pin 21 to ground setting the output frequency. While designed as an LFO, it will go up to 20 KHz without any problems.

The envelope generator section is

somewhat more difficult to understand, since there are several options not normally associated with standard envelope generators. There are also some limitations.

First of all, let's look at the envelope select logic block. This block has two pins which are logically controlled. With pin 1 low and pin 28 high, there is no envelope shaping at all and the output of the mixer passes directly to the output VCA. Under these conditions, with system enable pin 9 high, sound from the IC is disabled. With the system enable low, the IC is enabled.

With pin 1 low and pin 28 low, the VCO gates the signal on and off. When the square wave output of the VCO is high, the mixer output passes through the amp; when the VCO output is low, the amp is off. With sub-audio VCO frequencies, this produces a "square wave tremolo" type of effect. With pin 1 high and pin 28 high, the same basic effect occurs except that the amp is on during alternating cycles of the VCO. The system enable performs the same function as before: high for disabled, low for enabled.

Pin 1 high and pin 28 low gives our fourth option, one shot control; this is most like the traditional envelope generator. In this mode, the system enable pin performs two functions. First, when it is high, the IC is disabled; however, bringing pin 9 low and keeping it low not only enables the IC, but triggers the one-shot. The one-shot generates an output (i.e. turns on the amp) for a period of time dependent on the time constant set by a resistor to ground at pin 24 and a capacitor to ground at pin 23. When the one-shot timing cycle has ended, or when pin 9 goes high, the amp once more shuts off. To re-trigger the one-shot, pin 9 must be brought high and then low again.

However, you'll note that all the envelopes generated so far are simply on/off types, albeit of different lengths. To add attack/decay functions, we need to look at the envelope generator section.

The capacitor connected from pin 8 to ground charges through the resistor connected from pin 10 to ground, setting the attack time; it discharges through the resistor connected from pin 7 to ground to give the decay time (actually, it is charged and discharged by current sources inside the chip... the attack time is part of the one-shot envelope, whereas the decay is added at the end of the envelope (see Figure 3). Therefore, you must make sure that if you have, say, 250 milliseconds of attack time, the one-shot generates an output for at least 250 milliseconds. A shorter one-shot period will either clip the attack time, or eliminate it altogether. The same constraint occurs with the VCO envelope (see Figure 4); the attack time must be less than or equal to the period of time that the VCO is high.

Finally, let's examine the power supply requirements. The chip is designed to take the 7.5 to 9V filtered but unregulated DC present in most computer/game systems at

ILLUSTRATIONS: COLIN GARDNER

pin 14; a regulated +5V output powers the chip, and additionally appears at pin 15. Pin 15 is the place to tie logic outputs high, and may power an additional 5 to 10 mA of external circuitry. If you already have a regulated +5V supply, simply connect it to pin 15 and ignore pin 14.

To talk about all possible applications of this chip would literally fill one or two complete issues of this magazine, and it took quite a lot of headscratching to figure out what kind of representative application to include. However, since white noise is something almost everybody wants but is hard to produce predictably by conventional means, Figure 5 shows a white noise generator using the SN76477. I haven't shown any envelope or gating; we're just assuming you want something that sits there and makes noise.

This particular circuit generates 2.8V peak-to-peak of noise. The clock control changes the timbre or character of the noise; the filter control changes the amount of high frequencies present in the output... and that's all there is to it. By gating the signal with an envelope containing no attack and some decay, you have a simple percussive voice. Blending in some LFO can add a "choppiness" that comes close to approximating a snare type of sound, with the snares rattling against the drum head.

There are many, many more possibilities. Need a triangle output from the VCO? Tap off the VCO timing capacitor with an op amp buffer, and you'll have a triangle wave at the buffer's output. You may use the same technique to tap a triangle wave from the LFO. Using FETs or transistors in place of the various grounded resistors generates options like voltage controlled noise clocks (a particularly nice effect!), voltage controlled VCO duty cycle, and so forth. We could go on and on, but that's enough for now.

These ICs are available from most T.I. stocking distributors, or from mail order suppliers (I know of at least two: Bill Godbout Electronics, PO Box 2355, Oakland Airport, CA 94614; and Bullet Electronics, PO Box 19442, Dallas, TX 75219). Prices vary, so check the above sources. T.I. publishes an excellent manual on the SN76477, but you might have a hard time getting one unless you are an OEM... perhaps a local distributor can help.

While an SN76477 does not exactly offer the precision, exponentially controlled functions found in traditional synthesizers, it fulfills its intended purpose admirably... that of a low cost, easy to apply sound effects generator. Now you don't have to tie up thousands of dollars of synthesis equipment when you want simple sounds; just whip out the SN76477. Although it took me about 10 days of experimentation just to feel that I knew my way around the various possibilities of this chip, it was time well spent... I'm looking forward to integrating this part into a variety of projects.—**Craig Anderton**

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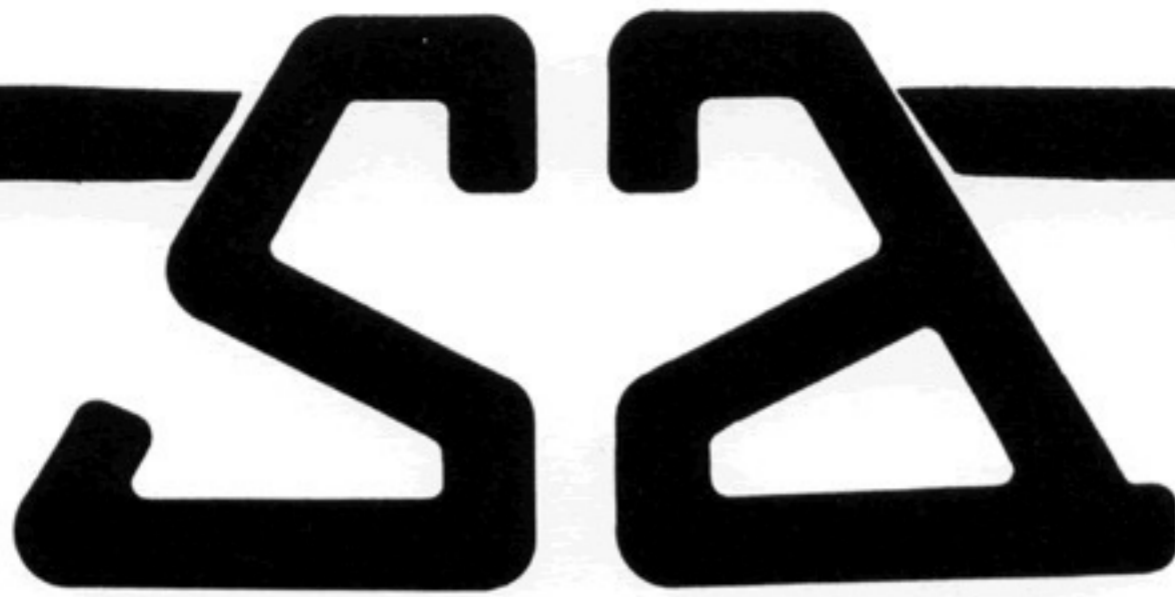
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Pat Gleeson From page 29.

Carlos may be a possibility, but if he is, he died for us in a very underground way.

Yeah. Without publicity. That's an interesting thing about the difference between rock 'n' roll and electronic music— is that rock 'n' roll has always had a fine sense of the poseur: and I think electronic music's attempts at the poseur have been so amateurish that they have really stunk. And so we're stuck so far with this cult of sincerity. I mean, if anybody had abandoned a gold record career as a rock 'n' roller, they certainly would have renounced the world on the pages of *Rolling Stone*. Whereas Carlos just quit making records with great frequency. It may only be an intensification of interest in life process, and maybe art. I haven't heard the work in progress, but I have faith in Carlos, and I think it may just be a thoughtful work that's going to take several years to finish.

But synthesizers have always been absolutely unheroic machines. I would say that the live performance of electronic music, such as with your machine, is the beginning of heroics with synthesizer because of the risk.

I intend to be that hero. I've set about a lot of things in my life this past year consciously aiming towards that.

Are you ready to die?

If necessary. You really have to clean up your whole act. I'm increasingly discovering that the choices I've made as an artist in this music are making it impossible for me to act in a way that is survival oriented as a producer or session player. Very few artists who've developed a personal style are really much good any more as general musicians. You almost need to keep part of your personality blank, or vacant, or unrealized in order to do these other jobs. A good producer has to have an open mind and a good artist has to have a closed mind. There has to be a certain road or path that you're following, and finally it leads back to yourself. You can't do that as a producer, you have to be open, not only to the artistic needs of the artist but his economic needs, which may mean you have to urge him to compromise because of the rewards. You can't do that and then walk back to your own music. You have to be willing to die in that sense. You have to be willing to go down in flames. I think that this perception has become clearer during the year.

What do you see as being heroic in what you are doing?

As a musician, the year before last, I made more than \$50,000. This last year I made about \$6,000. So to give up \$44,000 of income for the sake of musical self-fulfilment is in itself fairly heroic, and I've also put about \$85,000 into this instrument. So I think heroic action is risky action. You've got to take risks which are going to be painful if they don't pay off. This instrument allows me to express what I'm doing musically with great clarity. That is also risky. It's exciting though. An exciting time of my life.

You're out of the closet and into the frying pan.

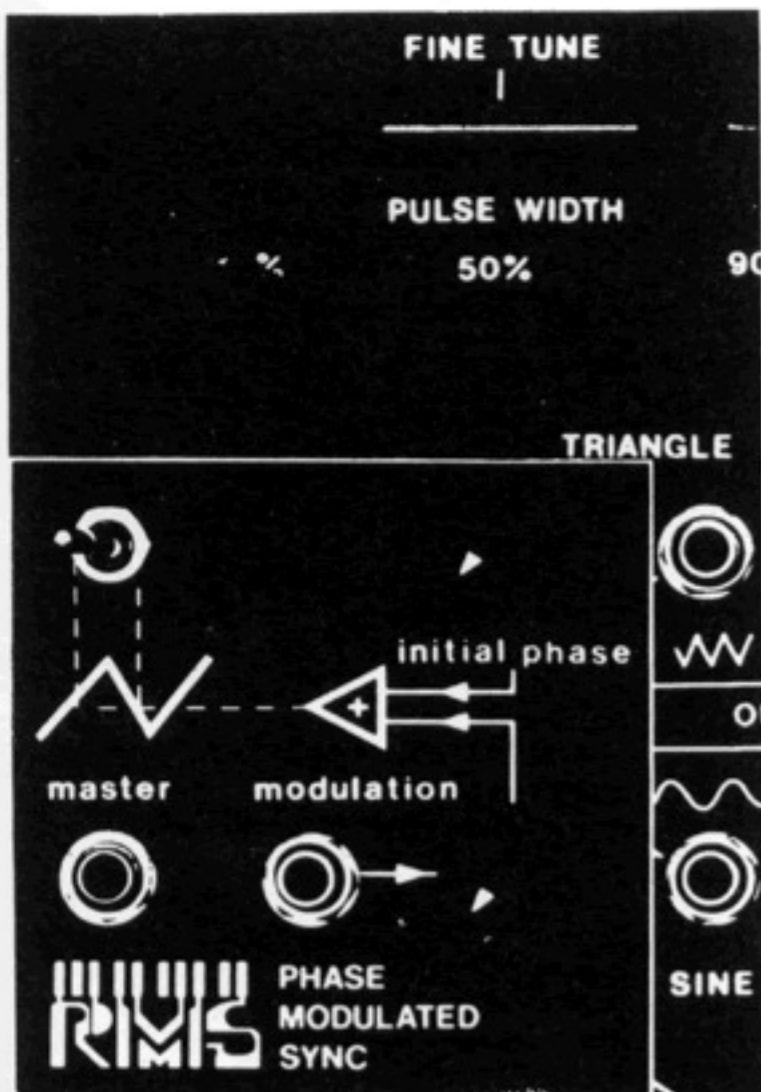
Right, you're out of...[laughs]. That's great.

Where do you think the analog synthesizer is headed?

I suspect that the analog synthesizer is eventually going to join the orchestra.

Maybe.

It's just too exciting an instrument in combination with other instruments for it not to be used that way. I'm interested in that, and in fact I'm going to rescore this music for synthesizer and a small orchestra. In fact I have to because the



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National Endowment of the Arts has given me money to do that. I would love to conduct it or simply to hear it being conducted, or to perform the synthesizer parts. Part of the whole expression of what I'm doing, is to get it out there. It makes me less picky about how it's gotten out there. To the horror of some friends of mine, I'm planning to play in the clubs. I also think that the next stage of development for me will be much easier with the audience response. I would like to do a live album sometime down the road.

A live synthesizer album would be great.

Yeah, if I had a really good disc set-up we could really do it beautifully because we could perform it all live on the disc and then come back into the studio, take each individual line, and run it through the usual mixing apparatus. So it wouldn't be this kind of live mixing.

Do you have any fear of failure?

As long as I feel that I'm growing as a musician, which just happens pretty naturally if you work every day, and as long as someone is listening, I would not feel like a failure. I would be utterly frustrated about being in the position of a Bartok or someone, where most of my works I never hear. That would be horrifying. Second worse would be that I would hear them and nobody else would. That would be difficult.

What kind of image would you like to leave people with? What would you like people to know or think of you?

I think what I really want them to know is just who I am as clearly as possible through the music. Let me think of an analogy. I remember seeing John Cage at the Cornish art school in Seattle in '55 or '56, and he was a bit of an unclassifiable figure. He was stranger than he is today, because he was gay, and that in itself was stranger and more exotic in the fifties. He certainly wasn't an *enfant terrible*, he was a guy in his forties, and yet he was sort of something terrible. He was doing something strange, but you felt that an evening of what he was doing was very natural- for him. And consequently it was not a bizarre evening at all, and I think that's a good model.

I'm not a classifiable figure. There are not many guys in their forties which, socially speaking, is middle aged, trying to establish a musical identity and career. Either people have given up or they are established. It's a strange position to be in, although it's one I like because, to whatever extent I may have once established something, it's not anything I would want to live with. I'm not a jazz musician; never was a jazz musician, and I'm not particularly interested in the direction jazz is taking. That's over, so I'm coming with no history.

So I just want people to understand what it is that I am doing. I don't want an evening of chatty, personal, self-revelation, or to be particularly loquacious about it, nor to be one of those persons who maintains a kind of mystery by saying absolutely nothing.

Just be a regular guy.

A regular strange bird [laughs].

What musicians interest you at this time? Are there any directions that you keep an eye on?

I want to hear from Carlos. When I was in New York last I was up to their place and I understood there was a new project in process. It's utterly tragic that people don't realize what Carlos's contribution has been. He was too pop for classic, and too classical for pop. "Pomp and Circumstance" is an incredible piece of virtuosity on a synthesizer. It's a real expression of the personality- very vague, strange wit. It's really a glance at human kind from a very interesting and almost chilling perspective of understanding.

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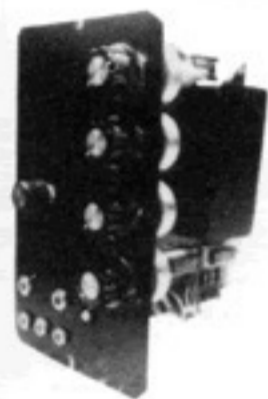
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EQUIPMENT



Korg VC-10 Vocoder

The Korg VC-10 Vocoder responds to the ever increasing interest in vocoded effects caused by their use in many current recordings and films. Vocoder effects are by no means new (introduced by Bell Telephone Laboratories in 1948), but in general their musical applications have only a few years of history and only in the last year have they been widely available in the market place.

Since some Synapse readers may not be familiar with the workings of contemporary vocoders, this brief description should fill you in. In their most generally used mode of operation, vocoders transfer vocal qualities on to a non-vocal sound giving the impression of speech to the non-vocal sound. The vocal input (generally your voice) is analysed by a multi-band filter

bank as to the amplitude of the harmonic bands present in the vocal input, corresponding to the same bandwidths in the filter section into which is introduced a replacement signal that can be just about anything, although there are some practical restrictions. The replacement signal then has the harmonic content and movement of the original vocal input, resulting in the illusion of speech.

The Korg VC-10 is unique among the half dozen vocoders available today on several counts. One of the most startling, but not a clincher, is the price- \$1300.00 (not including the optional Korg MC-01 microphone). Another is the built in top octave divided keyboard, and there is also the comparative ease of operation.

Those who have followed the multi-thousand dollar action in this area of synthesis may well be asking if this instrument really works. The answer is yes. One might also be asking whether it works as well as the high priced models and the answer here is not so simple. To confuse you for a moment, the trade off here is one of performance vs performance- that is, performance of the instrument vs performance with the instrument. More on this in a moment.

For replacement signals, the VC-10 has a polyphonic, top octave divided 32 note keyboard, a noise generator, and an external signal input for accepting outside sources.

Vocal inputs are accepted by the optional Korg MC-01 microphone or the front panel mic. input. A meter is included on the front panel to set the proper levels for both the source and replacement signals. Voltage control of the tone generator (keyboard) is possible from the external pitch input, the LFO, the pitch bend wheel, and by the accent bend, which decreases the voltage in response to an increase of the amplitude of the vocal input. Aside from the vocoder filters, audio processing is allowed by an "ensemble" mode that affects the keyboard as well as the un-filtered voice output. The keyboard and the noise can be mixed together prior to the output filters, and the unprocessed microphone signal can be mixed in at the final output.

To proceed with the performance vs performance concept, the VC-10 is in my experience unequalled in ease of operation. The inclusion of the keyboard along with the optional MC-01 microphone (mounted on the top of the instrument with a goose neck stand that should really be a bit longer for comfortable usage) make the instrument self-contained and make most contemporary vocoder effects readily available with minimum hassle. Although the use of external replacement signals is more problematic as a result of miking, transients, attack characteristics and sustain characteristics, the VC-10 performs well here too, and unusual

applications such as running the vocoder off an effects send of a mixing board are quite feasible. The most annoying limitation is that of acoustical feedback through the microphone, demanding special placement in performance. But even here, since the feedback circuit can be interfered with by both input signals, unusual applications are possible. One design choice that I wish had been made is to allow the keyboard controlled tone generator to appear at the output independent of a vocal input to open the filters, so that it could be used for background chordal work in performance- a nice economy.

Although vocoders are most often associated with talking, very interesting results are attained by singing into the microphone, thereby affecting the filters in a more extreme manner. Effects such as flanging can be achieved by sweeping the pitch of your voice, which in turn causes the filters to respond in a like manner.

The accuracy of the vocal reproduction of the VC-10 is quite good but not great. The multi-thousand dollar units generally offer better control over this aspect, but when price and ease of operation are considered, the compromise seems justified and the Korg VC-10 can be seen as a major move in bringing vocoder effects to the average, and most often poor, musicians.

-Doug Lynner

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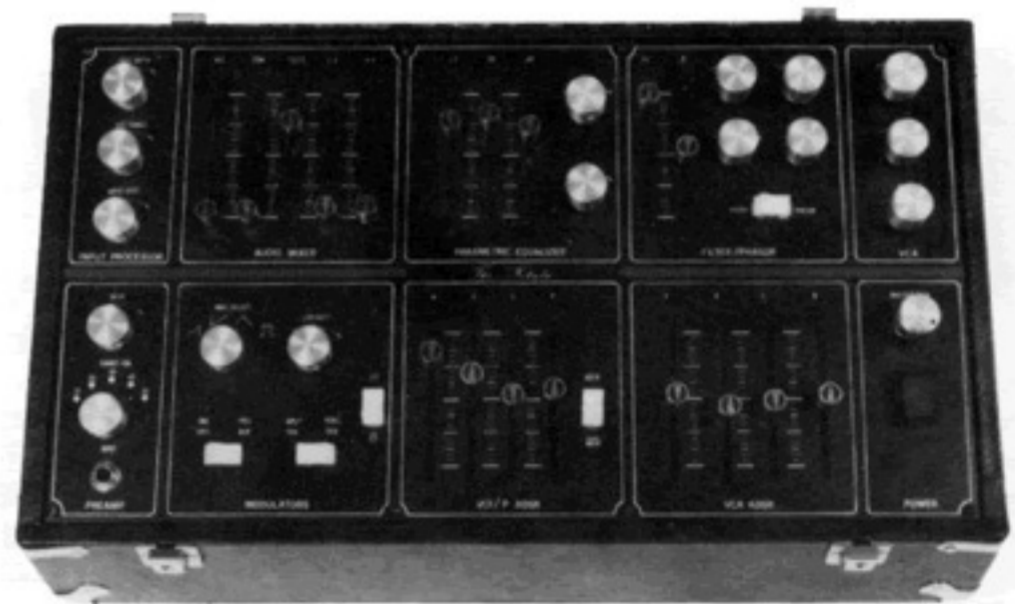
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Multimoog

Easily the most unusual aspect of this instrument is the variety of physical control the player has in attenuating and routing modulation voltages. The modulation of many voltage controllable functions can be controlled by a pitch ribbon, a modulation wheel, keyboard pressure, or any combination of these.

There are two main sections for modulation on the Multimoog: Keyboard Touch and Modulation. These sections work separately or together depending on the setting of the Effect switch between them. When this switch is on "bend", the keyboard force signal (the result of pressure on a key) is attenuated by the Amount knob and routed by the Destination knob of the Keyboard Touch section. The functions of the Modulation section are still available independently under the control of the modulation wheel. When the Effect switch is on "mod", the source of modulation (determined by the Source knob in the Modulation section) is the same for both sections, with the keyboard force signal now opening and closing a voltage controlled amplifier controlling the amount of "source" routed by the Destination knob of the Keyboard Touch section. As with the other mode of operation described, the "source" signal is also attenuated by the Amount knob. When the Effect switch is set at "off", the keyboard force option is inoperable.

The pitch ribbon works independently of both sections. It has three settings, allowing for pitch bend of both oscillators, or just one, and an off position. While it cannot be routed through any of the available sections on the front panel, it does afford the only possibility of bending a pitch down. Execution is a bit difficult, but probably becomes easier with practice.

The Multimoog, in addition to offering a variety of subtle sounds and excellent control over them, has the advantage of interchangeability of functions. If you don't like the wheel or ribbon for pitch bend, you can use the pressure (a plus in performance, since it is visually more convincing); if you don't like opening the filter with pressure, you can use the wheel. The combinations are seemingly endless; and it's really up to the imagination of the players as to how they will use all of these functions.

My main complaints with the Multimoog are really aimed at those aspects of the Micromoog which were used here. There is no sine

wave for the LFO, so that a nice lilted vibrato is very hard to achieve even with keyboard pressure, and is a matter of millimeters working with the wheel. In fact, the only sine wave on the Multi comes by way of the filter, but its uses there are fairly limited. Detuning (or tuning for that matter) of oscillators for a "fat" sound also requires an extremely delicate touch, as the oscillators tend to beat against each other frenetically, or be out of tune completely if one is not careful. My biggest gripe however, is with the envelope generators. Both are AR. For the VCA, this is adequate; for the filter, it is not. An ADSR envelope would have made a big difference here, allowing the sound a lot more bite and variety in texture. The funky sound most often associated with the Moog name is difficult to achieve without sounding very electronic, especially in the lower registers. Half of the spectrum of the filter emphasis knob (Q) is useless, and when it is turned up, the inadequacies of the AR envelope come sadly to the surface.

Rear panel outputs include an S-trigger jack which outputs a trigger whenever the envelope generators are triggered; a keyboard jack, providing a keyboard voltage of one volt per octave; a ribbon output jack, outputting the voltage of the pitch ribbon; and a keyboard force jack which outputs the signal produced by the pressure mechanism under the keyboard.

Input jacks include filter access for external control of filter cutoff frequency; Oscillator A & B, allowing external control of the frequency of the audio oscillators; an S-trigger access which triggers envelope generators with switch closure; Audio, for processing of external sound sources; and Touch Mod Effects, allowing an external signal to replace the Modulation source in the Keyboard Touch section. Also on the back are jacks for footpedal control of glide and modulation.

If your interest in synthesizers is based on recreating the sounds most commonly associated with pop music, this may not be the instrument for you. As I said, the envelope generators are frustrating to work with, and you may not be able to imitate more commercial sounds to your satisfaction. What the Multimoog does offer is a greater variety of sounds, and better control over their generation than any other performance synthesizer in its price class.

-Melodie Bryant

serge modular

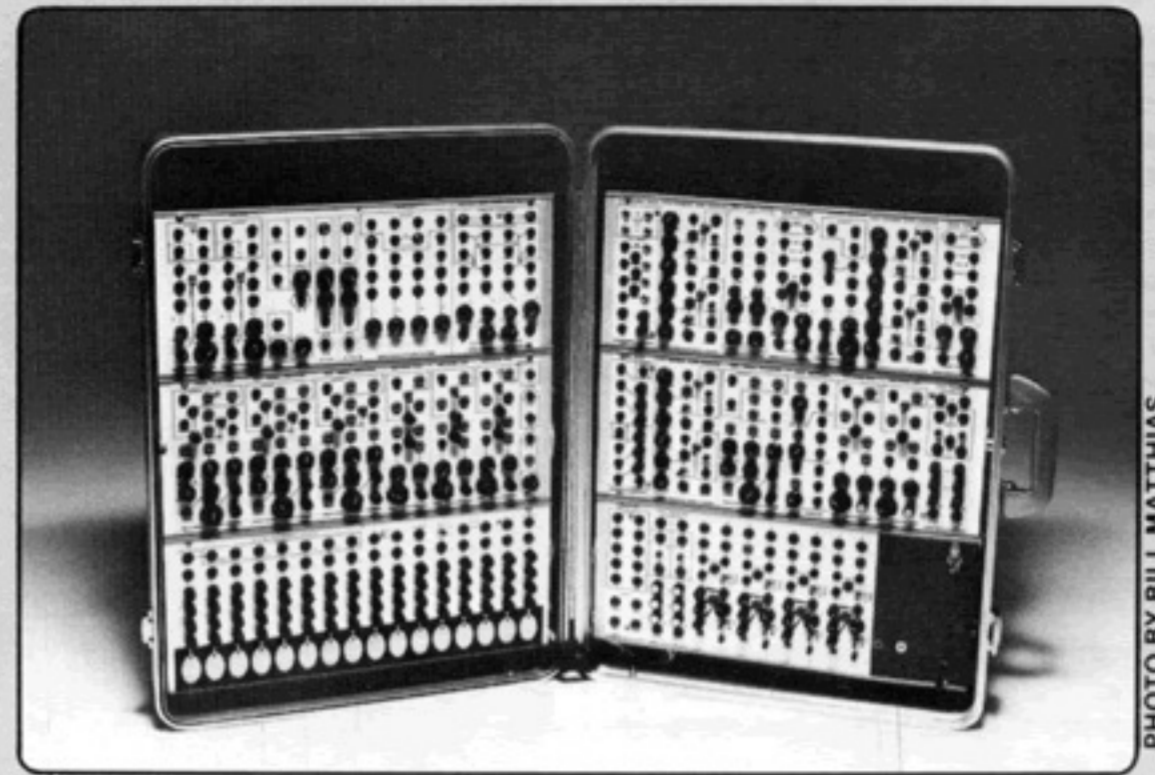


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music systems



We'd like you to know about Serge Modular. We make what may be the most precise and versatile synthesizer system in use today. The Serge Modular is available either fully assembled or in money saving kit form. We made it modular, to assure that a musician (or video or computer artist, for that matter) can put modules together to fit his or her specific needs, and also to make room for future expansion of a Serge System. We adhere to industry standards such as 1 Volt per Octave VC inputs etc. to allow easy interface between Serge Systems and other synthesizers. We made it as versatile as we could within the state of the art, because we wanted to expand the possibilities of synthesis, not to limit our equipment to a few pre-patched effects. We made it innovative, because our pursuit of the highest quality allied to an affordable price made it hard not to be innovative, and because we are basically research rather than commercially oriented.

A few specifics about our hardware: We make the stables oscillators, guaranteed over a temperature range of 40 to 100°F. And the trackingest. Our precision VCOs track within a cycle over the entire pitch range. Our VCAs and Panners feature over 80 dbS/N and better than 60 dbS control rejection. Whether stereo, quad, penta or octophonic, our panners adhere to the equal power law for the smoothest

and most accurate spatial location. Many of our modules are patch-programmable. This means that they can be patched to perform functions which in traditional systems would require separate costly modules. For example, our Dual Universal Slope Generator can be patched to work as envelope followers, log-linear saw, triangle and timing-pulse VCOs or LFOs, accurate VC portamento, VC pulse delays, envelope generators, and VC sub-harmonic generators. We use industrial quality components only, to ensure 100% reliable performance. **When we ship an assembled system, it is fully burned in, calibrated and guaranteed 2 years, parts and labor.** When we ship a kit, even an inexperienced kit builder is assured success, because we ship all pc boards fully assembled, tested and calibrated.

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PROFILE

Jean Luc Ponty was born in the Normandy region of France, the son of professional musicians. At 16 he began a three year stay with Concerts Lamoureux Symphony Orchestra. Excited by American jazz, Ponty played that form exclusively for the next three years, and when the possibilities of the rock mode presented a new challenge he plugged in with Zappa, McLaughlin and Elton John- all of which is ancient histoire. In 1975 Ponty began to write, play and perform what he terms a 'synthesis' of all his experiences, the latest result of which can be heard on a new live album, to be released this spring.

Synapse: Let's talk about fusion....

Ponty: Oh, God....I don't like that word, mostly because it doesn't sound good to my ear. Synthesis I like much better. My life has been going from one field of music to another, then another, not so much back and forth, but at one point I switched to jazz, a few years later to rock. Then one day I stopped the whole thing and started making a synthesis of all my experiences, so it includes classical music, jazz and rock. And what I wanted to achieve was to use what I felt was most interesting from each field and use all this in one music. But more than anything the music is really determined by what you write, and it just so happens that what I write sometimes comes more influenced by my classical experience, or by the jazz or the rock experience. There is the fullness, richness of the orchestration of a symphony orchestra because of all these different sounds, and that many people/musicians contribute to the dynamics first of all. That's one thing I was missing in jazz, for instance. That's about the only thing I really loved in classical music that I missed. What I kept from jazz is the idea of improvisation, which lends spontaneity to my music. When we go on tour our goal is not to reproduce exactly a cut from an album, but we are there to live the music; play it and create something new every night. From my contact with rock music I kept the concept of exploring with electric and electronic sounds. Thanks to keyboard instruments I was able to fulfill that goal of having a full sound. This is not very jazz-like in concept, so that's why I'm personally for a break of barriers between all the styles, because there are good things in every mode. I hate people who say classical music is the only serious music and look down on jazz or anything else, and jazz musicians who have become prejudiced against electric instruments and electronic instruments and say jazz is the only music. I'm not for that kind of square view.

What about the situation where you are both artist and producer. Do you have any compromises or problems with this combined role?

Yeah. As a producer I have to criticize myself. I mean at least to listen to my own playing with a critical point of view like any other producer would, and basically not being self-indulgent. Outside of that



PHOTO: BILL MATTHIAS

Jean-Luc Ponty

I also have to avoid being indulgent as a producer to everyone in the band, and to get the best sound possible and not just myself. That was the point many producers bring up, and also all the people who are against a musician or an artist producing himself. Because of his ego he is too self-indulgent and listens exclusively to his own part in the music and not to the rest of the band, and wants that to be right. I'm sure if a drummer played on an album he would tend to listen to his drumming, right? That's a stage you have to go beyond, but I believe it's a question of maturity. I'd have been totally unable to produce an album five or six years ago, but I feel I am now able to because I know enough of sound, drums, keyboards, and bass to be a producer. Now the advantage and positive aspects of that is the total freedom and creativity provided; as long as you are not self-indulgent, it is the best situation possible.

Do you have any techniques to keep yourself in that objective position while at the same time

being a creative person? Are there any ways you have to trick yourself back into objectivity?

I'm sensitive to the feelings of other people around me who hear the music being created; at least the impact of my music on these people. I can see right away if these people get bored by something or if their interest is retained. But really when produce, I play first of all, then produce trying to listen with the ears of someone else, to the sound of the recording, to the rhythm track, to all of it. It's not really that difficult when you know what you want to achieve.

Since you do so many live performances, is that a consideration when you are producing? Do you think, "If I do this, how am I going to play it live?"

I don't really over-use studio techniques like overdubs. I use them to get a certain sound on the LP that you don't need live. I approach producing and recording the way a painter creates- you take your time, and you wake up the next day and look at what you've

got and realize with a fresh view of it that additional colors would probably look better. And recording is that way. You go back to what you have done the previous day and suddenly with fresh ears you say, "Oh God, if I would add a bit of synthesizer there it would be great;" and if it isn't you erase it. Performing live is another story- you don't have an opportunity to add or delete; it's right there and that's all. Doing it is reinforcing. Sounds of certain parts achieve more of the sound color I want. This is one reason I added one more guitarist to the band. I really need one more musician to play the additional parts.

Do you use basically the same sound processing equipment live that you use in the studio, and what kind of processing do you use on your violin?

I use exactly the same studio equipment on stage. I process my violin through what I and my band and crew call 'the device box'. I had an electronic engineer put a few devices I use together in one box. So there was whatever I had at the time, like echoplex, ring modulator, two Maestro phase shifters and one more phase shifter, and also my Barcus Berry pre-amps for my violins- all of this incorporated into one board, done so that I could patch like a synthesizer and use any combination of the devices I wanted. I was able to bypass any of them, to use only one or a few that I needed. I thought I wouldn't find anything more than these devices until somebody brought me a digital delay and I said, yeah, I have to get this, so now I have a new rack, twice as big as the first, if not three times it's size; and I have two DDLs and the Mu-tron bi-phase which is a phase shifter.

I noticed one of your guitarists was using an ARP Avatar. Have you been interested in interfacing your violin to a pitch-to-voltage conversion to do the same kind of thing?

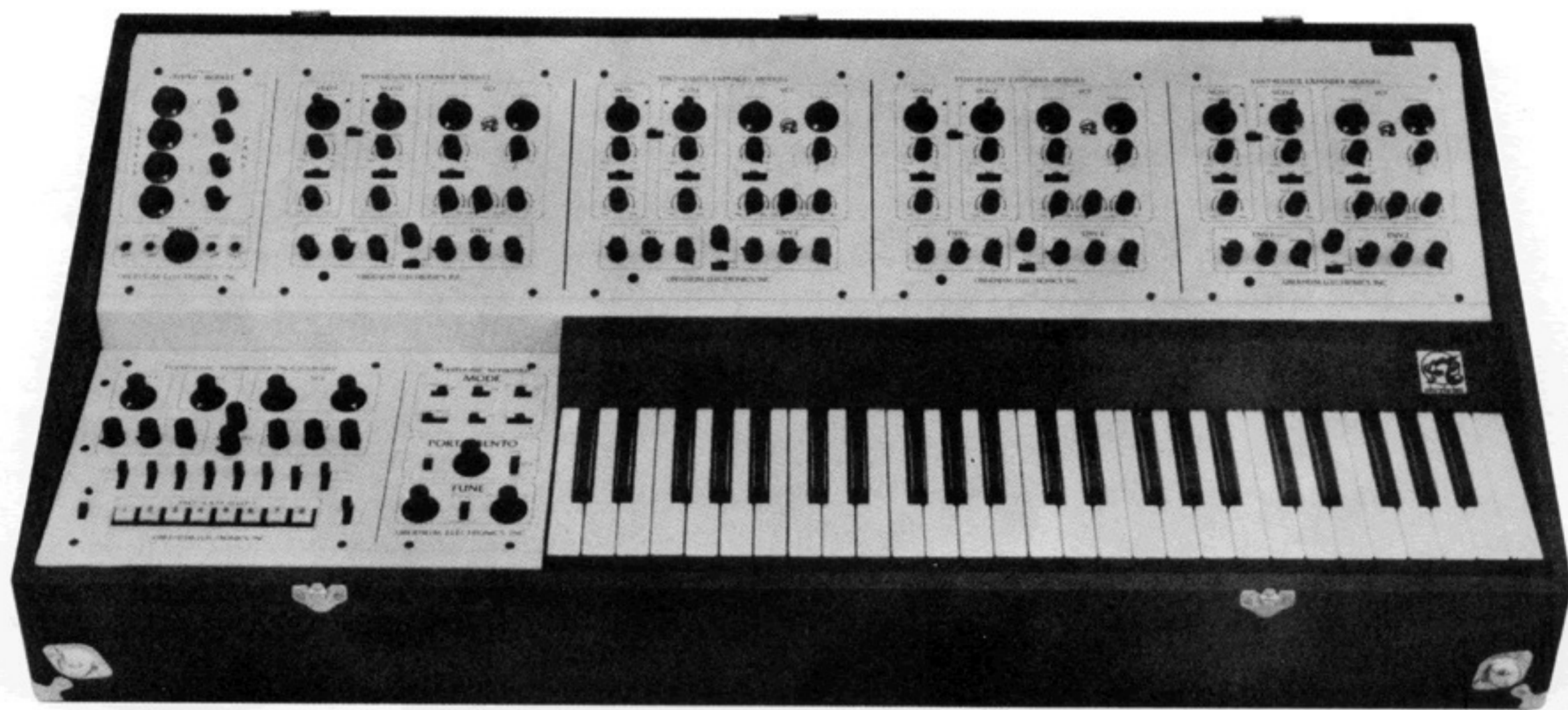
Yes, I am interested in doing that, but I haven't yet explored all the possibilities. The thing is, with all these devices I have, like digital delay line, phase shifters, the violin has a sound which is in the family of the synthesizer, and in a way I don't really need it. Since I want so many keyboard sounds and more synthesizer parts, I discovered that if you have more of the same part played by a few instruments you have a combination of sounds. You can get away with it because you get such a fuller sound live than you do in the studio. There is sometimes one guitar on stage and it sounds as powerful as two on the album, because of the use of the guitar synthesizer, and for that reason I am interested in plugging my violin into one of these things too. What I want to avoid is having my violin sound too much like a synthesizer, because I have that sound and need the violin sound- the actual violin part- which is responsible for the warmth, a quality that is really specific to the violin. That's an important part of the originality of the sound which I wouldn't want to lose.

-Doug Lynner & Paul McKenna

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